

THE POLAR TIMES



Charles W. M. Swithinbank
1926-2014

July 2014



President's Message

Dear Fellow American Polar Society members:

As we begin our 80th year as a major polar society devoted to the increased knowledge and protection of the polar lands and oceans, I am pleased to share some very exciting news with you. We have just made

preliminary reservations and preparations with the director and staff of the world-famous Scripps Institution of Oceanography in La Jolla, California, to hold our next symposium there from 3–6 Nov 2015.

The theme of what is certain to be a major symposium will be "The Role of the Polar Oceans in Global Climate Change." Your officers and directors, with the assistance of Scripps, will be gearing up to identify and bring in the world's top authorities/speakers to examine and discuss all aspects of this extremely important subject. It is my hope that a number of these authorities will be coming from within our own ranks. We

will also be seeking a number of sponsors to assist us in accomplishing this and will be counting on whatever active support you, our fellow members, can give us.

This will be a particularly timely event that you will not want to miss, and we urge APS members to make a special effort to attend and actively participate. In the months to come, we will provide information with regard to suitable hotels/motels in the near vicinity, meal arrangements, registration and associated costs.

Any suggestions you might have with regard to session topics and speakers will be greatly appreciated and should be forwarded as soon as possible to me or John Spletstoesser.

Finally, any assistance any of you, especially APS Governors, can render in bringing in corporate/institutional/individual financial support will be critical and also greatly appreciated.

With warmest regards,

President, APS

Membership Letter

Greetings from the coast of Maine! The snow is gone, the ice is out and my scuba gear is ready to go. It is a great time of year here in Northern New England.

I am happy to report that the American Polar Society currently has 723 members from 17 countries, representing all continents except Antarctica (somewhat ironic). Of those members, 669 are from the United States representing all 50 states except Arkansas, North Dakota and Utah. So if you know anybody in those states, let's get them signed up!

We have had 16 new members join the society so far for 2014, although none for the life membership. I would like to challenge all

members to actively bring in someone else to the society. I am sure there is a colleague, friend, family member, neighbor, etc who has an interest in the polar areas of this planet. If you know of someone, please send me their names and contact information, and I will approach them for possible membership. Once again, I am honored to be your membership chair and hope your spring, summer and rest of 2014 goes well for you!

Charles Lagerbom

Membership Chair

American Polar Society

The American Polar Society was founded Nov. 29, 1934, to band together all persons interested in polar exploration. Regular membership dues are \$25 a year (\$35, foreign) and entitle members to receive *The Polar Times* twice a year. The American Polar Society is classified as a tax exempt organization under Sec 501(C)3 of the IRS Code. For more information about the American Polar Society, contact Charles Lagerbom, APS Membership Chair, at aps@bluestreakme.com

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SAVE THE DATE

APS Symposium:

**"Role of Polar Oceans on
Global Climate Change"**

**Scripps Institution of
Oceanography
La Jolla California
(San Diego)**

**3-6 November 2015
(Tues–Friday)**

Please send all membership
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About Our Cover:

The Polar world has lost a giant.

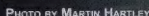


PHOTO BY MARTIN HARTLEY

Charles W. M. Swithinbank — 1926—2014

In this special issue of *The Polar Times*, we honor a great friend, distinguished scientist, scholar, gentleman and member of the American Polar Society for many years.

Charles Swithinbank began his polar career at an early age, as a student at Oxford University. College expeditions led him to Gambia and Iceland where his experience in 1947 on the largest ice cap on the island, Vatnajökull, was perhaps a signal to him that the study of the planet's glaciers was to be a turning point in his life.

He was born on November 17, 1926, in Pegu, Burma, where his father was with the Indian Civil Service. After two years with the Royal Navy as a sublieutenant, he began his education at Pembroke College, Oxford, earning a DPhil. in 1955. The timing to continue with research as a glaciologist was in his favor when the opportunity surfaced to be the assistant glaciologist on the Norwegian-British-Swedish Antarctic Expedition, 1949-52, in Queen Maud Land. It was an experience of a lifetime, providing the international camaraderie that was to continue for his career. It also involved new aspects of the science, including ice-drilling and coring, and seismic studies of glaciers.

With time on his hands and finding it a useful addition to his expanding education, he learned and became fluent in Norwegian.

Another opportunity arose for him to pursue his chosen field when he moved from Cambridge to the University of Michigan in 1959 to work with U.S. parties on the Ross Ice Shelf. In 1960 he married Mary Fellows, who traveled with Charles after his retirement when he was a lecturer on tourist cruises, which included the Canadian Arctic, the North Pole on nuclear-powered Russian icebreakers, and the Antarctic.

Following his time with U.S. parties, Charles joined a Soviet expedition at Novolazarevskaya Station, spending two summers and a winter and, as a side interest, became fluent in Russian. (The Russians have a word that describes Charles: "Polyarnik," or one who makes his career working in the polar regions.)

Before retirement, Charles held management positions at the Scott Polar Research Institute and the British Antarctic Survey. Radio-echo sounding became a standard feature of his life, with regular flights over the Antarctic Peninsula and British Antarctic Territory.

After retiring from the British Antarctic

Survey in 1986, he took a major interest in the relatively new discovery of blue-ice features on the ice sheet that could be used for wheeled aircraft runways, which made it possible to accommodate flights from South America to the interior, for expeditionary activities as well as tourism (a new feature compared to ship-borne tourism). A temporary summer camp was established at one of those blue-ice locations at Patriot Hills in the southern Heritage Range of the Ellsworth Mountains, and the activity continues annually with a camp on Union Glacier.

To follow the history of the interesting 60-year career of this world-famous glaciologist, investigate the four books he authored for the general public. It will definitely be worth your time. A summary of Charles' achievements and career can be likened to a quote from Maxim Gorky, Russian dramatist:

"In the darkness of the polar night, the sun of human intellect now shines brightly."

It can be said that intellect is a legacy of Charles Swithinbank, who passed away on 27 May 2014. ¶ *Tribute written by John Splettstoesser*

Paths to Polar Careers

We continue this series with a couple of old-timers and another “new kid on the block.”

The Ohio State University

Certainly OSU is a standout institution renown for its achievements in the polar sciences, and the presence of the Byrd Polar Research Center on campus serves as a global beacon for scholars, researchers and students at all levels. It is so well-established in polar sciences and the recorded involvement of men and women

in the northern and southern reaches of the world that the need for an organizational structure has never gained traction. Buck-eyes just do it!

Jason Cervenec, Education and Outreach Director of Byrd Polar Research Center, took our call requesting the OSU story for this series, and he replied, “After some careful reflection, I realized there was no one path at OSU and that this had been the case for a long time.

In fact, the routes of many of our students are indirect and serendipitous. I decided to check in with three of our alumni—two of whom are still with the Center—for their stories of how they came to work in polar regions. My original goal was to distill their comments into one article but, after reading each of their responses, I realized that the stories were better captured in their own words.”

Jason, as they say, was “spot on.” ¶

In Their Own Words...

Kelsey Bisson

I'll never forget the day I found out that I would be traveling to Antarctica to accompany the Lyons research team in their pursuit of understanding the geochemical dynamics of the McMurdo Dry Valleys.

It was spring of my junior year of undergraduate studies, and I had spent a routine morning in the lab running samples. My advisor sent me a characteristically curt e-mail message to meet him in his office, and I was slightly anxious, unaware of the reason. When I met him, he told me that there was funding to send me down to the ice. I couldn't contain myself, and I hugged him before he could finish his sentence, and it felt like my entire world had shifted. I floated down the stairs to the basement and ran to my hockey practice that evening, unable to eat or properly express my thoughts to others. I was going to Antarctica! Even saying it in my mind sounded ridiculous. Though I had been working in the Lyons lab since my sophomore year, I never thought I would be able to travel with them to the Antarctic, though I had hoped in my wildest dreams that I could. When I was a little girl, I used to play make believe with my brother that we were polar scientists investigating the frozen ponds that formed near the end of our driveway. Since I was young, I've had an insatiable curiosity for our natural world, and I couldn't sleep fully for months after hearing I would be going to Antarctica, a dreamy playground for a young explorer. Despite this, my energy levels have never been higher. I had proved to my advisor and lab group that I was capable



Kelsey Bisson

of running samples and in doing so, earned the opportunity of a lifetime.

It's not difficult for me to pick out my favorite moments from Antarctica. The 24 hours of glorious sunlight made it possible for me to venture around the station in the evening hours after people had gone to bed. One night, I went to Hut Point where Robert Scott famously built his hut. I watched seals play for what seemed like hours, completely immune to the cold, biting wind. Imagine, an episode of National Geographic unfolding right in front of you! I felt the thrills of an outsider spying on them, though they graciously shared their secret lives with me. It's very easy to fall in love with the inhabitants of the McMurdo Sound: they are playful, silly, sometimes humorously grumpy, and very much a treat for a young scientist like me. I also loved working in Crary Lab, which is a clean, beautiful space that holds brilliant minds and expensive equipment. I was honored to run the TOC/TN machine, which measures total organic carbon and total nitro-

gen in stream and lake water that others collect. My analytical career highlight was running the WISSARD samples for the first time to get a baseline idea of the total organic carbon content. The drilling in Lake Whillans was more than just a scientific victory; in some sense it was an American accomplishment as the team took special care to not contaminate the samples in ways that the Russians accidentally did in their Vostok sampling, which garnered international attention a year earlier.

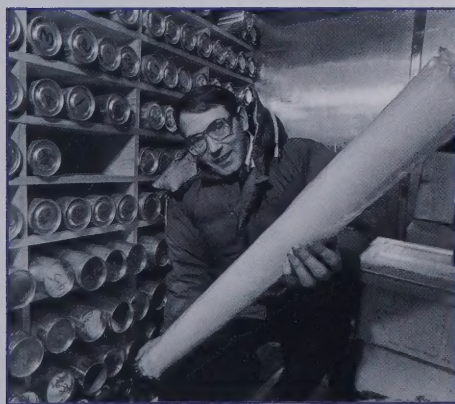
Another experience sticks out in my mind, and it's more difficult to form into words. I think in life that there are experiences that are so special you almost don't want to share them with others so you can hold onto that very real human feeling of introspection. One time in Antarctica I took a helicopter to Miers Valley to assist our Master's student with her sampling. Leaving the station was always an adventure because you forfeit comforts not unique to Antarctic life: a warm bed, cooked meals, weekly yoga in the station gym, etc. At Miers Valley, we sampled streams for a full 24-hour period, taking aliquots of water every hour. We then fell into a deep hibernation and woke up to the news that our ride home would be delayed at least a day, maybe two. Our rations waned, but we had chocolate bars to provide sustenance in addition to many freeze-dried meals. Since we used all of the sampling bottles provided to us, we were free to wander. I remember leaving camp and hiking up a scree slope, which consisted of my short legs carrying me two steps before sinking back one. Along the way to the top of the ridge, I saw myriad ventifacts, which are surreally sculpted rock carved

by the intense winds that cut through the valley. I played games to entertain myself, trying to guess things that the ventifacts resembled (is that a goat or a lizard?). Walking through a graveyard of granite in Antarctica is a special experience, and one that I return to often. I sat on top of that ridge and grinned at our brilliant sun as it streamed through the sky and sparkled radiantly in dimples of snow. I don't know if I have ever been as supremely happy as I was in that moment. To sit on top of the bottom of the world and reflect on my life and where I wanted to go in the quiet silence of Antarctica was deeply humbling.

When I look back on my time in Antarctica, I remember flying over orca on the way to field sites, spying on seals off the Hut Point Peninsula, laughing with Kathy Welch in the analytical lab, taking Sunday hikes to Castle Rock to explore the epic landscape, and sharing coffee with some of the most incredible scientists and people I've had the privilege to know. It was a truly transformational experience, and I'm looking for ways in my Ph.D. oceanography program to return to the Southern Ocean.

Lonnie G. Thompson

Having grown up in the small town of Gassaway deep in the mountains of central West Virginia, neither my high school education nor my training at Marshall University, first in physics and then in geology, gave me an



Lonnie G. Thompson

adequate introduction to glaciers. In fact, I came to The Ohio State University in 1971 to study coal geology because I intended to get an education so that I could find a job. During my first quarter as a TA in the Department of Geology at OSU, I received a notice in my mailbox about a research position in what was then the Institute of

Polar Studies to study ice cores under the direction of Dr. Colin Bull. Being a practical young man, who had completed a course in geomorphology, I knew that glaciers only covered 10% of Earth's surface and were located in places where people did not live. So, how could glaciers possibly be important and, for a young man in search of a good job, who would pay you to look at ice? Since it would allow me to concentrate on completing my Master's degree and securing a job more quickly, however, I took the research position. After a year, I started to realize what might be preserved in ice cores and I completed my M.S. degree in September of 1973 entitled, "Analysis of the Concentrations of Micro-particles in an Ice Core from Byrd Station, Antarctica".

It was my first trip to Byrd Station in Antarctica in the fall of 1973 as Deputy Field Leader with fellow student Ian Whillans, which made glaciers real for the first time. I could actually see, touch, and begin to appreciate how special they are and realized that you could still go to places where no one has ever set foot. You really begin to feel like a pioneer. Ever since that first experience, I have made it a point, as often as possible, of going places where others have not been. If you drill an ice core from such a place you are almost guaranteed to find new and exciting science. I think if education works right, you start out looking for a career, but somewhere in the process, if you are lucky, you will find your purpose and a reason to get up every day

Henry Brecher

In the summer of 1959, I had been working for about a year as a test engineer on jet engine combustion chambers at Pratt and Whitney Aircraft in East Hartford, Connecticut and was tired of the industrial "scene" and therefore looking for something more interesting to do. One of my colleagues was attending night school in Hartford and mentioned one day that he had just seen an announcement on a bulletin board which said that someone was looking for people to go to Antarctica. He had the contact address but no further information. I decided that this was worth looking into and sent a letter saying that I understood that they were looking for people to go to Antarctica, that I was interested in applying for a position and included a resume.



Henry Brecher

I received a reply from what turned out to be an office at the Air Force Cambridge Research Laboratory which was recruiting aurora observers to winter at each of the four Antarctic stations maintained by the United States at the time. They wanted physicists, and failing that, electronic engineers. However, they apparently did not get enough candidates with those qualifications and wound up hiring me and another mechanical engineer, that is anyone with a technical background, in addition to two physicists for the four positions.

We all went through a several-months-long training program together and were then each assigned to one of the stations. In my case, it was Byrd Station. I arrived there in early November 1959 and spent a year at the station. I was eager to do some fieldwork before returning home after having wintered and buttonholed everyone I could think of to accomplish this. I was fortunate to be selected to join the tractor train from Byrd Station to South Pole Station as "glaciologist" in the summer of 1960-61. Before leaving on that trip, I met Dr. Richard Goldthwait, one of the founders of the Institute of Polar Studies at The Ohio State University, at Byrd Station. He gave me a crash course in how to make useful glaciological observations in snow pits and encouraged me to get in touch with him when I got back if I had gathered any worthwhile data. He said that he would give me a desk and a month's salary to write a report on the results of my work. I became a graduate student and research assistant shortly thereafter and eventually participated in many polar and high mountain projects. ¶

Editors note: While Henry is officially retired, he continues to play an active role at the Byrd Polar Research Center. A presentation he made in 2014 on his experiences on the 1960-61 Byrd Station to South Pole Station expedition is posted online at <http://bprc.osu.edu/education/blog/videos/>.

And From Out of the Mountains Came ... INSTAAR

The Institute of Arctic and Alpine Research, University of Colorado, Boulder

Out of the mountains? Literally? Yes. Literally.

In the early decades of the Twentieth Century the University established mountain Laboratories first in Tolland Co. and later The University Camp at Niwot that eventually became The Mountain Research Station which remains today as an important field station supporting INSTAAR research.

On campus and inaugurated in 1951, INSTAAR is the oldest research institute at the University of Colorado. Here we find structure that offers students—graduate and undergraduate—a wide variety of clearly marked paths to the cold—as well as warmer—regions of the earth. Indeed, cold is no longer a restrictive element in INSTAAR programs, and students quickly learn that, in countless ways, Earth systems overlap, encompass and collide.

John Behrendt, Fellow Emeritus and Senior Research Associate at INSTAAR and former President of The American Polar Society has kindly provided the following synopsis of INSTAAR, its purpose and offerings. ¶

INSTAAR, at the University of Colorado at Boulder, is an interdisciplinary scientific research institute dedicated to understanding change in earth systems. Researchers from multiple departments and colleges come together in one unit to study the challenging earth and environmental science issues that confront our world and to share their expertise in biogeochemistry, climate, ecology, environmental microbiology, geochemistry, geochronology, geology, geophysics, glaciology, hydrology, oceanography, paleoenvironment, and surface processes.

While INSTAAR roots are in cold regions, research has been expanded to a wide variety of temperate and tropical environments and problems on all seven continents and the world's oceans. INSTAAR's national and international research leadership is augmented by exceptional strength

in graduate education.

Students at INSTAAR are at the forefront of research projects and are an integral part of the institute. For students with interests in earth and environmental science, INSTAAR provides a unique opportunity for integrative training, research experience in the field and lab, and access to a wide variety of analytical and computational facilities beyond those of their home academic departments.

Students at INSTAAR are just as likely to meet at a weekly tea or rock climbing session as in a laboratory. The friendly community that students form is part of the unique, interdisciplinary culture of INSTAAR.

INSTAAR faculty involve graduate and undergraduate students in their research. Graduate students are often employed as research assistants on grant-funded projects and conduct their own degree research.

Each INSTAAR faculty member has a full-time appointment in a CU academic department: Anthropology, CEA Engineering, Environmental Studies, Ecology and Evolutionary Biology, Geography, Geological Sciences, or Atmospheric and Oceanic Sciences. Teaching faculty offer courses through the departments.

Likewise, students conduct research at INSTAAR but are registered for a degree program in an appropriate department. Some choose to participate in interdepartmental programs like Hydrological Sciences or the Certificate in Oceanography as well.

Prospective students are encouraged to contact one or several INSTAAR faculty working in their areas of interest. Contacting graduate students already working with those faculty members may be helpful as well. Send general INSTAAR-related student questions to instaar@colorado.edu. ¶

Researchers in Iceland
(Photo by John Behrendt)



And Eastward Across the Great Plains To Iowa ... and ARCSES



The Arctic Social and Environmental Systems Research Laboratory at the University of Northern Iowa

by Dr. Andrey Petrov, PhD

The Arctic Social and Environmental Systems (ARCSES) Research Laboratory at the University of Northern Iowa was established in June of 2011. The center's mission is to develop collaboration among faculty, staff and students, who are engaged in research and educational activities pertaining to the Arctic, as well as other remote and cold regions.

It may be surprising for a Midwestern university, but UNI has a long standing legacy in Arctic research being the alma mater for a prominent Alaska anthropologist Dorothy Jean Ray and serving as a home to researchers studying a variety of Arctic subjects from creative capital in polar cities to sports in the Arctic Olympics, and from Greenlandic organ music to caribou migration in northern Eurasia. Over the years UNI faculty and students made multiple contributions to understanding social and environmental changes in the Arctic and conducted field work in many northern regions and communities.

ARCSES is led by Andrey N. Petrov, Assistant Professor of Geography. Dr. Petrov is a social and spatial scientist with a 'circumpolar' career: was born, raised and educated

in Russia, received his PhD in Canada (Toronto) and now works in the U.S. He also has had visiting affiliations with Yukon College and University of Greenland. The idea to create a research lab and gradually transform it to the Arctic Center was to give a home to many projects which Dr. Petrov, other UNI faculty and students conduct in the Arctic and Subarctic. ARCSES staff is mostly graduate students, but according to the UNI tradition, an important place is given to undergraduate research. Work in or about the Arctic is often "an eye opening experience" for Iowa students that gives them a different perspective on the surrounding world.

An important task of the ARCSES is to connect researchers in Iowa with academics in the polar countries and with other institutions to build collaborative relationships. ARCSES has close connections with



UNI ARCSES students at the Association of American Geographers Conference in New York City, Spring 2014

A number of ARCSES projects are devoted to monitoring of human well-being and development in the Arctic. Faculty and students have participated in the Arctic Council's Arctic Social Indicators and Arctic Human Development Report II. Both have the goal to devise social indicators which will help facilitate monitoring of human development in the Arctic over time, as well to measure impacts of resource activity on northern communities.

A completely different thread of research, heavily involving geospatial technology and satellite remote sensing, deals with the spatiotemporal shifts in seasonal migration of wild reindeer in Taimyr, Russia's northernmost peninsula. The world's largest concentration of reindeer/caribou exhibits rapid changes in population distribution over the last decade. UNI scientists work with Russian biologists on compiling and analyzing historic and real-time satellite data on the herd population number and location to understand the relationships between observed shifts and environmental and human-made factors, including climate change.

For more information please contact Andrey N. Petrov, University of Northern Iowa, 348 Innovative Teaching and Technology Center, Cedar Falls, IA 50614-0406; 1-319-273-3507; or www.uni.edu/arctic



Dr. Andrey Petrov, PhD, Director of ARSES at UNI

There are various definitions of the word “treaty,” but the most succinct definition found in most dictionaries is “A formally concluded and ratified agreement between states or countries under international law, also known as a protocol, covenant, pact, etc.”

The world seems to operate best when agreements on a variety of subjects can end conflicts, define national borders, protect wildlife and so on. You can get some idea of that variety by visiting an Internet link on Wikipedia.com, labeled “List of Treaties,” ranging in time periods from 1283 B.C. through 2013. Of the several hundred in that list there are two primary polar treaties that govern (1) an entire continent on the planet—Antarctica—and (2) a large archipelago north of the Arctic Circle (Svalbard). The Antarctic Treaty, signed by 12 original signatories in 1959 and in effect in 1961, is an outcome of the International Geophysical Year—an 18-month year (1958-59) when 12 countries active in research in Antarctica signed a treaty that provided for continuation of research on the continent to be used for peaceful purposes only. This review is intended as a reminder of the history of the Antarctic Treaty and a summary of its 14 articles. (*A review of the Spitsbergen, or Svalbard, Treaty, which has several parallels to its southern counterpart, will run in the January 2015 issue.*)

The history of the Antarctic Treaty after more than 50 years shows that it appears to have worked exceedingly well, a tribute to its founders who dealt with several obstacles that had to be overcome during a period of what is called the Cold War. Whether it will last another 50 years remains to be seen, although perhaps it will not be in its original form, as evidenced by several additional related treaties that followed (see below).

The “List of Treaties” mentioned above is worth a brief review of its contents because of the few that deal with polar regions, the two most obvious being Antarctica and Svalbard. A few others stand out, one of them a result of the discovery of ozone depletion in the stratosphere of Antarctica—the Montreal Protocol of 1989. This has worldwide significance because of the attempts to protect the ozone layer by phasing

Polar Treaties That Work (Part One)



Figure 1: NSF Chalet at McMurdo with Treaty flags on display next to bust of Admiral Byrd.

out the production of a number of substances considered harmful to ozone production everywhere, not just in Antarctica.

Two additional treaties are worth mentioning in a polar context:

■ **2001: Agreement on the Conservation of Albatrosses and Petrels**—An attempt to prevent the decline of seabird populations in the southern hemisphere, particularly albatrosses and Procellariidae.

■ **2011: Arctic Search and Rescue Agreement**—A treaty among the eight member states of the Arctic Council to coordinate international search and rescue coverage and response in the Arctic.

We are privileged in this issue to have a guest writer, Ray Arnaudo, whose career was with the U.S. Department of State. He is recently retired. As a result of his many years in the role of a delegate to the Antarctic Treaty Consultative Meetings, Ray has volunteered an article on the status of the Antarctic Treaty. He will also include the status of the Arctic Council from his experience dealing with both polar regions.

Antarctic Treaty of 1959 (1961)

The Antarctic Treaty applies to all land and ice shelves south of 60°S latitude, but

not to sea ice. It is the first arms control agreement established during the Cold War. Although brief in content, its 14 articles stress the following objectives:

■ Antarctica shall be used for peaceful purposes only, with freedom of scientific investigations and with exchange of information and scientific personnel (*).

■ The seven territorial claims that date back to 1908 (U.K.), followed by New Zealand (1923), France (1924), Norway (1929 and 1939), Australia (1933), Chile (1940), and Argentina (1942), shall not be relinquished, but are not enforceable. No new claims are permitted.

■ In addition, there will be no nuclear explosions or disposal of radioactive wastes, and military personnel are permitted only for the use of scientific research or peaceful purposes.

The Treaty may be modified at any time; a 30-year period was included so that the Treaty would be subject to review in June 1991. It does not expire and shall be open for accession by any state which is a member of the United Nations.

Research in Antarctica by United States investigators is funded by the National Science Foundation (NSF), a government agency that has its major presence in Antarctica at McMurdo Station, the largest

station in Antarctica. Figure 1 shows the headquarters building for NSF and the U.S. presence, with a display of flags of Antarctic Treaty signatories.

The 1961 Treaty had 12 original signatories (seven claimant countries plus five others). Because there were no foreseeable issues at the time, the Treaty did not include (1) minerals potential; (2) fisheries; or (3) tourism.

Treaty countries took advantage of a science theme to side-step conflicting views on claims, established an on-going consultative mechanism to meet every two years to address new issues as they arose and declared Antarctica a special conservation area. The Treaty countries met every two years from 1961 to 1994 and have met annually since 1994.

Antarctic Treaty Consultative Parties concluded additional treaties since 1961:

- 1972 Convention for Conservation of Antarctic Seals (ratified in 1978)
- 1980 Convention on Conservation of Antarctic Marine Living Resources (CCAMLR) (1982)
- 1988 Antarctic Minerals Convention (not ratified)
- 1991 Protocol on Environmental Protection to the Antarctic Treaty (ratified in 1998)

The latter includes annexes that abolish prospecting or mining for 50 years; establish regulations for protection of fauna and flora; issue standards for avoidance of marine pollution; require environmental impact evaluations prior to any activity, whether it be science or tourism; reclassify protected areas; regulate waste management; and provide liability.

Some changes since the 1961 Treaty came into force include a fishing industry, minerals possibilities (dealt with in the Environmental Protocol), an increase in tourism, an increase in the numbers of countries joining the Treaty, and pressure from some countries to turn the Treaty over to the United Nations.

Formation of International Association of Antarctica Tour Operators (IAATO)

An Antarctic Secretariat was established in 2003 for the management of several

ATCM tasks such as support of the annual meeting of signatory countries of the Treaty and publication of the ATCM Annual Report. Secretariat headquarters is in Buenos Aires, Argentina.

The advent of increasing tourism resulted in an organization founded in 1991 that invited tour operators to set competition aside and form a single voice for an industry to “advocate, promote and practice safe and environmentally responsible private-sector travel to the Antarctic” (from IAATO website, www.iaato.org).

The basic responsibility that IAATO adopted starting with its beginning in 1991 includes strict guidelines for member activities when visiting wildlife colonies as one

example, and many other procedures outlined in Antarctic Treaty Recommendation XVIII-1, “Guidance for Visitors to Antarctica,” enacted at ATCM in Kyoto in 1994.

The Antarctic Treaty Consultative Meeting (ATCM) is the primary forum for the Parties to exchange information, formulate measures, and make decisions and resolutions in order to promote the principles and objectives of the Treaty. The outcomes of the meetings are adopted by consensus of the Consultative Parties.

The Consultative Parties host the meeting according to the alphabetical order of their names in English.

Treaty countries now meet annually. The XXXVIIth Consultative Meeting was held in Brasilia, Brazil, in May 2014 (see below). As of 2013, the Antarctic Treaty has 29 Consultative (voting) members plus 21 Acceding (non-voting) members, for a total of 50 countries.

This is the second time that Brazil was the host country of the ATCM, when the XIVth was held at Rio de Janeiro in 1987. It was noteworthy in the advance information for the 2014 meeting that a “Green Event” was “planned, organized and executed in order to minimize its potential negative environmental impact,” thus pointing to current thinking and policy of treaty philosophy and implementation of environmental issues.

In addition to the 50 signatory Parties that send delegations to the ATCM, there are also “Observers” and “Invited Experts.” “Observers” include CCAMLR; Council of

Managers of National Antarctic Programs (COMNAP); and the Scientific Committee on Antarctic Research (SCAR).

“Invited Experts” include the International Association of Antarctica Tour Operators (IAATO); the Antarctic and Southern Ocean Coalition (ASOC); and the Intergovernmental Panel on Climate Change (IPCC), among others. As tourism developed into a more active industry, IAATO’s first invited delegation to an ATCM was at Kyoto in 1994. Tourism is now on the Agenda for active discussion at each ATCM since then.

Between the introductory and closing plenary sessions, most of the work of the meeting takes place within the Committee for Environmental Protection (CEP) and various working groups, one of which is “Working Group on Tourism and Non-Governmental Activities.” ¶

() Many APS members will surely have had a similar experience that I have had in conducting research in Antarctica, namely that of exchange of scientific personnel among Treaty Parties. I participated in a field project in the Ellsworth Mountains in the 1979-80 austral summer under a NSF grant to Macalester College with Dr. Gerald F. Webers as Principal Investigator. Of the 40-some geologists who worked out of a helicopter-supported field camp, countries represented included not only the U.S., but also Germany, Japan, New Zealand, the Soviet Union and U.K.*

What is a Consultative Member in the Treaty and What is an Acceding Member?

The Antarctic Treaty has 29 Consultative (voting) Members plus 21 Acceding (non-voting) Members.

Note: Article IX of the Treaty states that a Contracting Party demonstrates its interest in Antarctica by conducting **substantial** scientific research . . . such as the establishment of a scientific station or the dispatch of a scientific expedition. The word “substantial” is difficult to define in this context. ¶

Polar Diplomacy

by Ray Arnaudo, Guest Contributor

Arctic Council

We're into Year #2 of the Canadian leadership of the Arctic Council. The Council is the international forum which allows the eight Arctic countries (Canada, Denmark for Greenland), Finland, Iceland, Norway, Sweden, Russia and the United States) and the six permanent participants, as the native groups represented are called, to coordinate cooperation on environmental and sustainable development issues. Of course, the AC is now front and center in international matters as the threat of global warming and melting ice allows the press to yammer about threats to navigation and sovereign claims to land and sea up there.

Canadian Leona Aglukkaq, an Inuk from Nunavut, and Canada's Minister for the Arctic Council is the Chair of the Council during Canada's term. And she's tasked with leading Canada through its two-year stint. The theme? "Development for the People of the North". It promises to focus on the four million inhabitants in the circumpolar North, in areas resource development, safe Arctic shipping, and sustainable circumpolar communities. It has also promised to establish a circumpolar business forum, which will advance Arctic-to-Arctic business interests, share best practices and engage in deeper cooperation. A special Task Force, chaired by Canada, and co-led by Iceland, Russia and Finland, has been created to establish the forum. All in keeping with the Harper government's pro-business approach.

Canada also promises to lead the Council to develop an Action Plan to prevent marine oil pollution in Arctic waters – an initiative that is of crucial importance as oil and gas activities in the Arctic will undoubtedly increase over the coming decades. This is also necessary to help implement measures needed to act on the new agreement on oil pollution preparedness and response, negotiated in 2013.

Two years before, the Council countries negotiated an agreement on emergency search and rescue. These mark a significant step for the Council, as they are the first international agreements ne-

gotiated by all eight Arctic countries

The U.S. team continues to be led by its Senior Arctic official, Julie Gourley, from the Department's Bureau of Oceans and International Environmental and Scientific Affairs, who coordinates the U.S. effort, in close cooperation with officials from the state of Alaska. The U.S. will take over leadership of the Council from Canada in the Spring of 2015. The Chair rotates every two years, and we are now into the second rotation of countries chairmanships. Canada was the first in 1996-1998, and the U.S. followed in 1998-2000, and 2015-17 will be our second go-round.

Of course, that leads to the obvious question of who will be in charge of the U.S. effort. Secretary of State Kerry announced in March that he intends to name a Special Representative for the Arctic to lead the U.S. effort when it assumes the Chair, but, as this issue went to press, he had provided no further information on who that person shall be, nor what the responsibilities would be, nor how the new person will interact with the current State-led leadership team. Between Gourley and the Secretary, there are four layers of supervision, and many have argued that the U.S. should follow the example of many other AC countries and name an Arctic ambassador. Kerry's action seemed to be in response to that suggestion.

The U.S. is in the process of identifying its goals for the biennial leadership role it will inherit next year, which could include a focus on climate change, especially the specific threat of black carbon emissions and its role as an enhancer of the warming process, water issues, such as hydropower as well as fresh water pollution, and improved communications between countries and institutions.

Antarctic Treaty

At the other pole, the 37th Antarctic Treaty Consultative Meeting (ATCM) and the 17th meeting of the Committee for Environmental Protection (CEP) of the Protocol on Environmental Protection to the Antarctic Treaty were held in Brasilia, Brazil from April 28-May 7, 2014. Representatives from the 50 Antarctic Treaty parties, plus experts and observers, attended.

Demonstrating Brazil's interest in the Antarctic Treaty, Brazilian Minister of External Relations Luiz Alberto Figueiredo Machado opened the meeting, to be followed by Minister of Environment Izabela Teixeira; and Minister of Defense Celso Amorim.

The CEP conducted its 17th meeting during the ATCM's first week. U.S. National Science Foundation rep Polly Penhale served as Vice Chair of the CEP, and this meeting marked the conclusion of Yves Frenot's (France) four-year term. Ewan McIvor (Australia) was elected Chair for the next two years.

China and Belarus announced their intentions to build new Antarctic research stations and submitted their draft Comprehensive Environmental Evaluations for the proposed construction. Chinese plans to build its station in the Ross Sea Region and would join Italy, Korea, Germany, New Zealand and the United States in the vicinity. It would be station #5 for China. For the record, the Committee raised concerns about the lack of discussion on cooperation and collaboration in the development of the Chinese plans for their new station. Belarus plans to build its station in cooperation with the Russian Federation in East Antarctica. It would be its first.

The U.S. pressed for action on the Polar Code, now under negotiations at the International Maritime Organization (IMO) in London. It is much needed to tighten requirements for ship safety and environmental protection in polar waters.

Tourism was in the spotlight as usual. New Zealand Chair Don MacKay, an old hand at Antarctic Treaty meetings, concluded his four year stint as Chair of the tourism working group. The U.S. focused on the need for risk-based assessments for land-based and adventure tourism and camping in coastal areas of Antarctica. The next ATCM will hold a special workshop before the meeting to look at current problems of tourism and non-governmental activities.

Next meeting: Bulgaria will host ATCM XXXVIII in Sofia from June 1-10, 2015.

CCAMLR

The big discussion at the last meeting of the Commission for the Conservation

of Antarctic Marine Living Resources (CCAMLR) held at the end of October 2013 was the proposal by the United States and New Zealand for a Marine Protected area (MPA). The proposal has been broadly resisted by fishing nations, who generally view protected areas as a way to prohibit fishing in general. But the proposal now reflected advice provided by the CCAMLR Scientific Committee at its July 2013 special intersessional meeting, which reduced the size of the proposed MPA by approximately 40 percent as compared to the original joint proposal – from 2.27 to 1.33 million square kilometers. But Russia, supported by Ukraine, stood firm in opposition, and the MPA proposal was put off again until the next meeting in late October of this year. The revised MPA, if established, would still be the world's largest and achieve the suite of protection and scientific objectives conceived in the original proposal.

The Commission also looked at another MPA proposal to establish a network of sev-

en MPAs in East Antarctica. Like the Ross Sea proposal, this was third time the East Antarctica proposal, which was first submitted in October 2012, was considered by the Commission.

Fishing for toothfish—or what we know as Chilean Sea Bass—stayed pretty constant in the 2012-13 fishing season: eleven members fished for more than 12,000 tons toothfish in the Atlantic, Indian, and Pacific parts of the Southern Ocean.

Krill catches also remained normal: five members fished for krill during the past season and caught just over 212,000 metric tons in the Atlantic sector of the Southern Ocean. As usual, maximum projection for next season's catch are high: six members submitted notifications for 19 vessels intending to catch nearly 600,000 metric tons next season, but, as always, projected catches show the maximum capacity of the fishing fleet and are much greater than actual catches.

CCAMLR's electronic catch documen-

tation scheme (CDS) for toothfish was set up in the 1990s to certify that the catches are made in compliance with CCAMLR's regulations and is widely-regarded as one of the most robust and effective of its kind. It monitors catches and makes sure exports are certified as legal by the sponsoring member and is one of the main reasons American retailers feel fairly confident to sell Chilean sea bass in their stores. But it has been in place for some time and CCAMLR agreed at this meeting to convene a review panel to review and improve the efficacy of the CDS.

Lastly, following a two-year trial period of reduced meeting days for the Commission meeting, from ten to eight days, the Commission decided to revert to the original two week meeting for its next gathering. CCAMLR's thirty-third meeting will be held October 20-31, 2014, at the Commission's Headquarters in Hobart, Australia. ¶

Ray Arnaudo, a retired State Department official, led the U.S. polar diplomacy for many years, writes the occasional column on U.S. international efforts in the Polar Regions.

Japan Whaling ... Yes-No-Maybe ... No-Maybe-Yes ... Maybe No ... Maybe Yes ...

Japan Plans to Resume Whaling Program, With Changes to Address Court Concerns

The New York Times, TOKYO, 19 April 2014, by Martin Fackler—In a move likely to bring renewed international criticism, Japan said Friday that it wants to resume its research whaling in the Southern Ocean next year under a redesigned program that would address objections raised by an international court.

In a statement, Minister of Agriculture Yoshimasa Hayashi said Japan would submit a new plan for research whaling this fall to the International Whaling Commission that would allow it to restart its annual hunts in waters off Antarctica in 2015. Earlier in April, Japan canceled this year's hunt after the International Court of Justice in The Hague ruled that the hunts were in violation of Japan's legal obligations under an international treaty banning commercial whaling.

In its ruling, the court questioned whether the program was really for research,

pointing out that it had yielded few scientific results. Japan says its 26-year-old research program -is needed to monitor recovering whale populations in the Southern Ocean, but opponents call it a crude cover for continued commercial whaling.

The decision announced on Friday ran against the predictions of some political analysts, who had said Japan might use the international court ruling as a face-saving pretext for scrapping an outdated program that had become a diplomatic embarrassment. The program had only limited support among the Japanese, who no longer eat much whale meat. The plans for a redesign suggest that pro-whaling interests influenced the government's decision, environmentalists said.

Mr. Hayashi said Japan would invite "famous scientists from home and abroad" to help devise a new research program that would satisfy the court's demands. He also

said Japan would scale back a separate, smaller research hunt that is to begin next weekend in the northern Pacific Ocean to give it clearer research objectives. Ministry officials said Japan was doing this voluntarily; the court did not rule on the northern hunt.

Mr. Hayashi said Japan was being careful to honor the court's ruling and international law. But he also said he hoped that the redesigned research whaling program eventually could serve as a step toward resuming commercial hunts, something sought by Japanese cultural conservatives but opposed by many Western nations.

"We are revising the contents of the research to take into consideration the court's decision to the greatest extent that we can," Mr. Hayashi told reporters. "We want to gather scientific data in order to resume commercial whaling as soon as possible." ¶

Antarctica: A Love Affair

by Fran Bayless, Wildlife Photographer

It all began with my fourth grade teacher, Edith Turner, an exceptional teacher and ecologist years ahead of her peers in teaching awareness for the care and respect of the earth, its land and water and all its creatures large and small.

Her classroom was more than a learning site; it was a place where adventure beckoned. A series of linen maps hung from the ceiling of the room, and each day Miss Turner would pull down a different map for discussion. My favorite map was South America; at the bottom was a small white oval labeled Antarctica, with a question mark. We were taught that Antarctica was a frozen and wild continent, mostly unexplored. Miss Turner planted a seed in my impressionable mind, and I knew that someday I would set foot on the Continent of Antarctica.

In the early years of our life together, my husband Tom and I explored America with our young children. We ran rivers, climbed mountains and hiked primitive trails

through canyons and wilderness out West. But, even while exploring America, I began to study Antarctica which was fast becoming more and more accessible to visitation.

When Tom and I became empty-nesters, we seized an opportunity to head south to the Falkland Islands and then crossed over to the Antarctic Peninsula. My dream became a reality.

Our crossing of the Drake Passage was true to its reputation of fierce winds and rough seas. Our ability to endure seasickness and remain upright on a rolling ship was tested aboard the *M/S World Discoverer*. We passed—barely.

After visiting several sub-Antarctic islands, our first landing on Antarctica was an event rough and wet! The trip to land was made by Zodiac, and it was both thrilling and a bit scary. Our coxswain gave us a show, passing close by several huge icebergs, some of which were host to penguins, and at times, he had to work the Zodiac through

heavy ice that seemed it may threaten to crush our rubber boat. Stepping ashore was anything but graceful but, finally, there I was, my dream come true, tears of joy and wonder freezing on my cheeks.

This was the beginning of many trips to various locations in Antarctica. Tom and I had the unique experience of sailing on five different ships: *M/S World Explorer*, *M/S World Discoverer*, and three Russian Icebreakers: *Akademik Sergey Valvilov*, *Kapitan Dranitsin*, and *Kapitan Khlebnikov*. The icebreakers were especially exciting as they took us places by helicopter or Zodiac that were normally inaccessible from tour ships.

Our next trip south truly changed the direction of my life. It was on this voyage around South Georgia Island that Tom gave me my very first camera, a simple point and shoot device. The results I obtained from this basic camera were inspiring and set me on the path to becoming a professional photographer.



Back home in Ohio, I enrolled as a student at the Cleveland Institute of Art and majored in photography. Concentrated study in the technology and artistry of photography provided me the knowledge and the confidence to pursue a new profession.

In those days—the '60s, '70s and onward—Leica cameras using rolls of film were the premier tools of the trade, so much of my work was accomplished with this family of equipment.

The circumnavigation of South Georgia Island was a fantastic trip, filled with exploration, historical sites, wildlife, diverse scenery and thousands of penguins, fur seals, elephant seals and the ever-present skuas.

We moved easily through huge colonies of King penguins where, among them, we observed hundreds of young chicks who just sat and watched (and, I assume, learned penguin parenting skills) while adults went about their business of tending to eggs and the newly hatched.

I was able to photograph one amazing sequence of a King emerging from the sea struggling up the hill, finding its mate, rolling their egg from the warm pocket of one's feet to the other, the two having a friendly chat and then the one being relieved of in-

cubator duty waddling off to the sea.

We followed in Shackleton's footsteps where he sought rescue for his men, over the mountain range from Peggotty Bluff to the Stromness Whaling Station. It was a difficult and exhausting journey and afforded us a profound appreciation for his courage, perseverance and dedication to the survival of his companions and those he left behind.

For a number of years we and several of our friends, including Peter Harrison and Shirley Metz, had been planning and discussing a trip to the Weddell Sea coast. We would fly from Punta Arenas to Camp Patriot and from there be airlifted to the coast and icepack of the Weddell Sea. There I hoped to photograph Emperor penguins at that stage when their chicks were young enough to huddle on their parents' feet for warmth. Easily said, but ultimately it took about three years to put together a planned trip of 18

days that actually encompassed five and a half weeks.

Much of our time was expended obtaining the requisite permits and solving a host of logistic planning and associated problems. Once our group rendezvoused in Punta Arenas, we cooled our heels, awaiting safe flying conditions to the Continent. Three times our flights were canceled. But finally our WWII DC-6 was cleared to proceed to the base camp at Patriot Hills.

Landing on a blue ice landing strip, we were introduced to -30°F temperatures and howling winds. After a two-and-a-half-mile walk to Base, we were greeted by the staff and given steaming hot bowls

of vegetable soup and many, many lectures on the rules of survival. Our tent was equipped with an air mattress and sleeping bag. Inside the tent it was -20°F. Toothpaste was the first thing to freeze, followed next by

(CONTINUED NEXT PAGE)



Okay! Sorry we went swimming without permission . . . (sigh)



Two King chicks pay an unauthorized visit to the ocean's edge. Their ever-vigilant parents would be along soon to fetch them out.

the one cup of water we were issued. Bathing? Forgedaboutit! Maintaining a healthy body temperature and keeping eyes shaded were the paramount considerations. Two weeks without changing clothes and no shower was a new experience!

My cameras and equipment were by far my first priority, and it soon became apparent that I had two choices: either keep my cameras and film at the outdoor temperatures or keep them wrapped after use and then allow them to slowly warm.

Frozen film and melting and freezing moisture were the greatest risks, so I decided to keep my gear and film under wraps until we flew to the ice and rookery.

Weather relented, and we flew to the Weddell coast. On landing we were greeted by many elegant and curious Emperor penguins who clearly wondered who we were and why we were here. I'm not sure that was cleared up before we left!

Again—the tent, air mattress and sleeping bag. But this time we had to dig ourselves out during the day due to the heavy snowfall. I learned to dig slowly to avoid perspiring, which would cause wet clothing. (Our many interlocking layers of clothing had been carefully researched and dearly purchased. Our boots were rated for -80°F, and our sleeping bags for -100°F.)

Our tent never became warmer than twenty below, and most of the time, outside, the temperature ranged between -50°F and -60°F. Protecting the hands and face was a full time chore.

The best light for photographing the penguins and surrounding landscapes was between 2 a.m. and 7 a.m. Each day I would load my little red sled and set off for the main rookery. Very often I would be joined by a little chick or a teenager who was wandering about searching for its parents—or, perhaps, a meal. I must say we had some of the most stimulating conversations, although I can't



Wildlife photographer Fran Bayless, 85, of Chagrin Falls, OH, stands at the geographic South Pole.

quite remember all that was said.

It was at the rookery where it would occur to me every couple hours or so that I was by myself alone with the penguins, in Antarctica—my dream completed. There was no measure of human activity, sights or sounds in this remote and almost-never-visited, beautiful and desolate tiny spot on earth.

Because we had suffered so many delays in reaching our destination, the time when the newborn chicks had to sit on their parents' feet had dwindled away. I had to hustle to get the shots I wanted, but finally, on my fifth day at the rookery, I found my subjects and took many rolls of film of the little darlings, all cozy and warm and totally unaware of what was in store for them in the years ahead.

As that venture ended I found that I had expended fifty rolls of film and experienced only a very few instances of damage from moisture or temperature.

Our next and last sojourn to the white

continent involved a visit to the newly discovered Emperor penguin colony at Snow Hill Island in the Weddell Sea. This trip turned out to be a monster of a physical and mental challenge. The gods of Antarctic weather threw the book at us!

Heavy fog, whiteouts, ice, gale winds, snow and snow and more snow, and temperatures way below the zero mark. Our mother ship, a Russian icebreaker, became trapped in the ice pack and, of course, helicopters couldn't fly in these treacherous conditions.

Thankfully, there's always an end or break in weather, good or bad, and finally an opening occurred that allowed the cop- ters to get us within two miles of the rookery.

Walking there was almost impossible. The wind had scoured the icy surface and created very rough terrain. The Emperors paid little mind to our arrival; but after only a few photo opportunities we heard the emergency horn sounding from the ship and knew that bad weather was returning.

On the way back to the ship I found a small soft snowy area, laid down and made an angel. I'm sure it is still there, and I hope that some day someone's child or grandchild finds it when they fulfill their dreams, just as I did. ¶

Since 1990, Fran Bayless has pursued wildlife photography as an artistic endeavor. During worldwide photographic adventures in quest of nature's treasures, Fran and her husband, Tom, have explored diverse wilderness areas from the Arctic to Antarctica and in between. One editor informed Fran that she was the first female wildlife photographer to be published in Kodak's professional magazine.

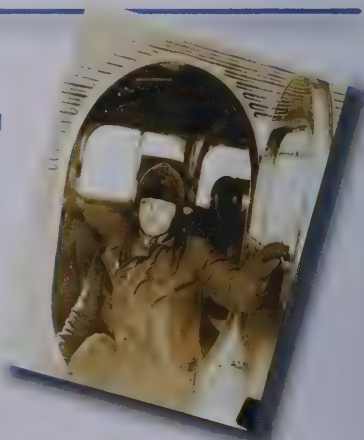
Fran took up professional wildlife photography at the age of 64. "I have no family responsibilities, and I have the time and the desire," she said then, "so I am going to fulfill a dream." Anyone who visits her web site at www.worldnaturephotos.net will agree—the dream came true!

Fran was chased by hippos in Africa and sat with penguins in Antarctica at a time in life when most people were taking up golfing or trying out their new Winnebago. At long last, though, she and Tom have now retired and are enjoying their many adventurous memories. You may contact her at fran@worldnaturephotos.net.



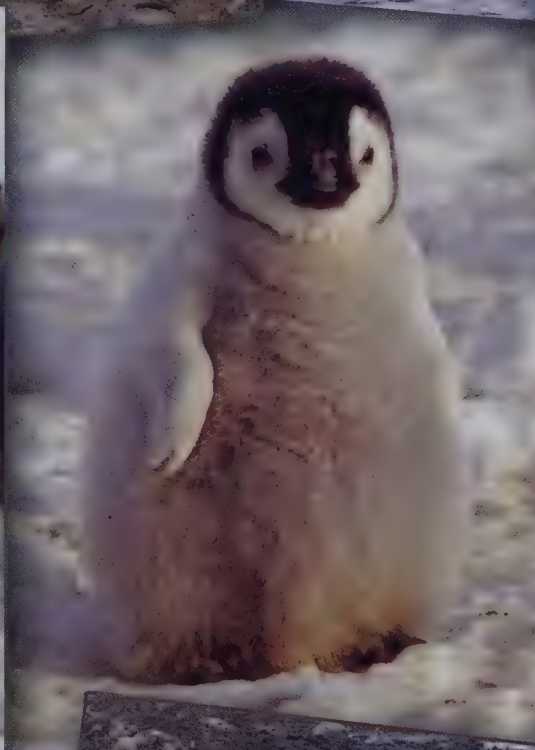
Fran Bayless relates:

"Admiral Richard E. Byrd was acquainted with my grandfather and, from time to time, he sent us photos of sled dogs, penguins and campsites on the ice that further excited my interest in Antarctica."



... of Emperors and Kings ...

Photos by Fran Bayless



Clockwise from top left:

- King penguin parents prepare to trade nesting duty
- A colony of King penguins heads out for a quick dip in the sea
- Happy Emperor penguin family
- King penguins playing "Mirror, mirror"
- King penguin chicks ("Will we never be shed of this fur?")
- A curious Emperor penguin chick peeks out to take stock.

Center: Fearless Emperor chick poses for the camera.



PHOTOS COURTESY OF THE OHIO STATE UNIVERSITY, BYRD POLAR RESEARCH CENTER ARCHIVAL PROGRAM (BPRCAP). PAPERS OF ADMIRAL RICHARD E. BYRD, IMAGE NUMBERS 223_7 (BYRD) AND 201212_1_10_10 (FOKKER AIRPLANE)

May 9th: A Day—and a Man—to Remember

by Sheldon Bart

Eighty-eight years ago, in the wee hours of May 9, 1926, two Navy aviators, Richard Byrd and Floyd Bennett, boarded a large experimental airplane with three engines, a wooden wing and a canvas fuselage stretched over a metal skeleton. Her dubious ski landing gear had been reinforced with wood scavenged from the oars of lifeboats. She stood poised on a snowbound hill overlooking the coast of Spitsbergen, an island halfway between Norway and the North Pole, her cabin crammed with survival gear and extra fuel in five-gallon cans. Swathed in thick furs from head to foot, squeezed side by side before the dual controls, the two crewmembers nodded to one another. The throttles were engaged, the engines roared alive; the trimotor thundered down the incline and headed due north.

If the flight of May 9th is remembered at

all today, it is with the profound skepticism that nowadays attaches to anything that smacks of heroism. Cynics snicker, casting aspersions on Byrd's character and doubting if his Fokker trimotor approached anywhere near her intended destination, the North Pole.

The truth is Richard Byrd (1888-1957) carried the fire at the beginning of aerospace, mastering aviation technology in its infancy and moving it several important steps forward through his own creativity and resourcefulness. He developed one of the first sets of instruments for aerial navigation out of sight of land, demonstrated the effectiveness of the air-cooled engine and the multi-engine aircraft under the most hazardous conditions, and spurred the popular acceptance of the airplane. The year after the Arctic flight, he commanded the first multi-engine transport plane to cross the Atlantic non-stop and was very likely the

first aviator to navigate an aircraft by radio bearings over the middle of the ocean.

Two years after the Arctic expedition, he assembled two ships, four planes, 94 dogs, 82 men and about 800 tons of equipment and provisions, and embarked for Antarctica. He successfully flew over the South Pole, conducted the first aerial surveys in the Antarctic to make use of modern photographic mapping techniques, facilitated the compilation of vast databases by the scientists who accompanied him, and brought the entire party back intact. He returned to the bottom of the world in 1933, adding a new element of surface transportation—tractors—and creating the model for Antarctic exploration for the next half-century.

*Sheldon Bart's most recent book, *Race to the Top of the World: Richard Byrd and the First Flight to the North Pole*, was published by Regnery History and is available at www.amazon.com.*

News from the Polar Archives

Byrd Polar Research Center Archival Program Receives Grant for Preservation of Byrd Film Series

Preservation work is currently under way on a unique film series used by Richard E. Byrd. The National Film Preservation Foundation awarded a \$32,160 grant to the Byrd Polar Research Center Archival Program for preservation of the *Discovery* Lecture Film Series. Shown on Byrd's lecture tour following his second expedition to Antarctica (1933-1935), these films transported the audience to Antarctica, a place which was still quite unknown at the time.

Buoyed from the success of his first expedition of 1928-1930, Byrd returned to Antarctica with an expanded scientific agenda. Many branches of science were represented, including biology, meteorology, geology, geography, aerial exploration, oceanography, seismology and terrestrial magnetism. Many "firsts" in the history of Antarctic exploration were achieved by the Second Byrd Antarctic Expedition. While still reliant on dog sleds, this was the first Antarctic expedition on which long-distance automotive transport proved to be of practical use. The first radio broadcast from Antarctica to the rest of world was on February 1, 1934. This expedition was the first to make seismic investigations of Antarctica, providing evidence as to the extent of whether the Ross Ice Shelf is aground or afloat. Byrd's status as a national hero was reinforced upon the conclusion of BAE II, and Byrd was highly sought on the public lecture tour circuit.

The Ohio State University acquired the Papers of Admiral Richard E. Byrd in two accessions, the first in 1985 and the second in 1990. Prior to the repository receiving the collection, the materials had been housed in a variety of places, including several warehouses and a barn, and had been moved



This image illustrates the most severe stage of nitrate decomposition in film. At this stage, there is nothing that can be done to save the film.

periodically, resulting in disorganization and a hazardous preservation environment. OSU received a grant from the U.S. Department of Education for the processing of the Byrd Papers, which took place over a two-year period from November 1, 1992, through October 31, 1994. Due to limitations of the funding, the primary focus of the processing was on the paper documentation and still images. Films received only cursory attention and were inventoried according to information on the canister or contained within the canisters. No cleaning, repair or rehousing of film elements was undertaken at that time. Consequently, films in advancing stages of deterioration continued to deteriorate, many beyond the point of preservation. Despite the odds, some film elements survive.

A thorough analysis of the film elements in the Byrd collection was undertaken from May through July 2012. Unfortunately, the news was not good. We found that many of our films, both nitrate and acetate, were in the advanced stages of decomposition, with

no possibility of preservation. The *Discovery* Lecture Film Series was originally comprised of a total of 28 reels of film. Of these, only ten reels have survived. Cinema Arts, located in Newfoundland, Penn., has been contracted to complete the preservation work, which began in July 2013 and will

be completed by July 2014. The films have been cleaned and repaired, and duplicate film elements have been created. In addition, access copies will be created in digital formats. By autumn 2014, scholars, students, polar enthusiasts and the general public will have an opportunity to view the films—79 years after their last showing in 1935!

To learn more about *Discovery* Lecture Series, as well as any of the other polar collections held by the

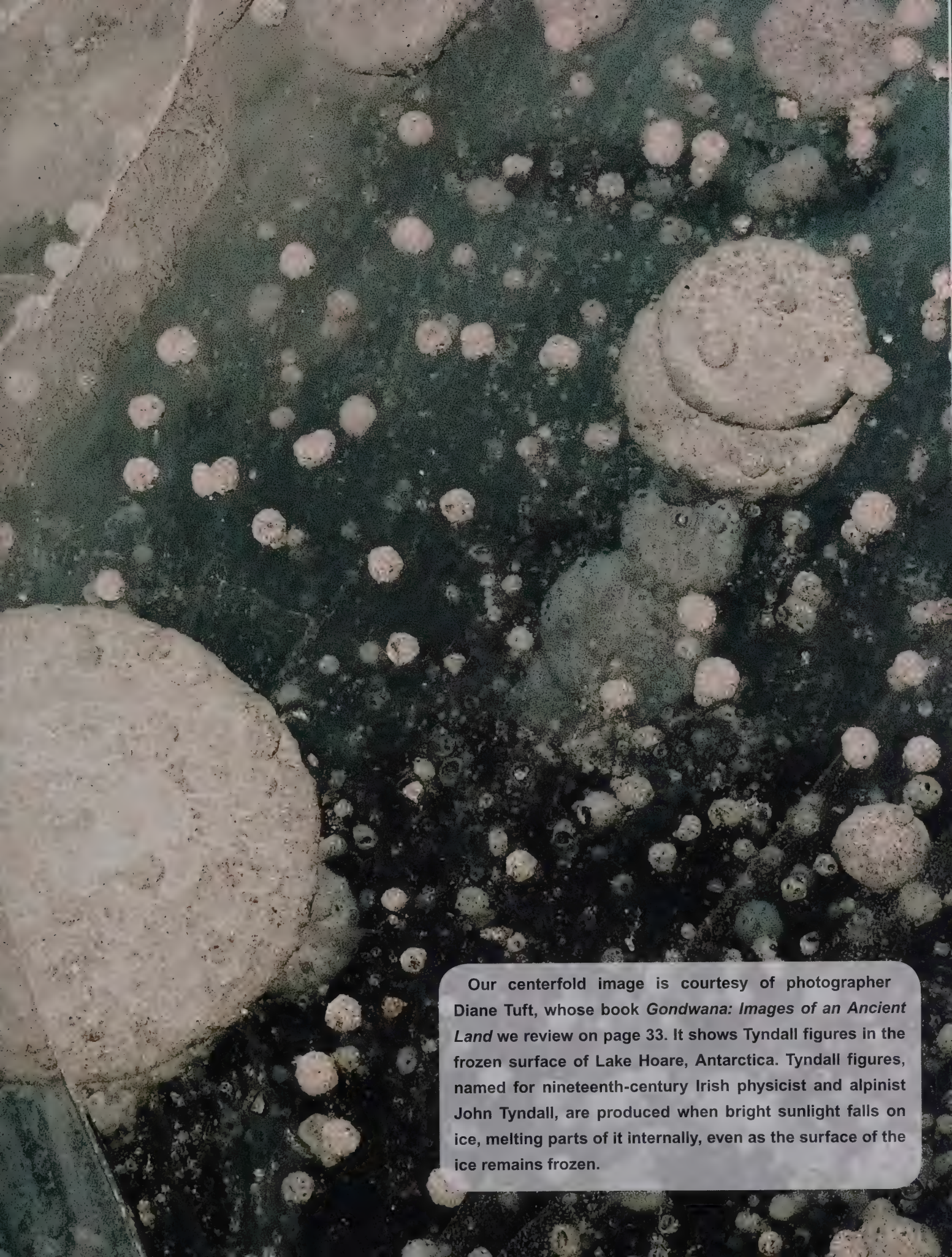
Byrd Polar Research Center Archival program, please visit go.osu.edu/polararchives or contact Polar Curator Laura Kissel at kissel.4@osu.edu.



In contrast to the film reel (shown above), this image—a still shot taken from one of the *Discovery* lecture films—shows that film stored in proper conditions will retain a clear and crisp image for decades.

Photos courtesy of Byrd Polar Research Center Archival Program





Our centerfold image is courtesy of photographer Diane Tuft, whose book *Gondwana: Images of an Ancient Land* we review on page 33. It shows Tyndall figures in the frozen surface of Lake Hoare, Antarctica. Tyndall figures, named for nineteenth-century Irish physicist and alpinist John Tyndall, are produced when bright sunlight falls on ice, melting parts of it internally, even as the surface of the ice remains frozen.

Transits of the Northwest Passage and North Pole Ships

by John Splettstoesser

Many of our members might be unaware of a host of services that R.K. (Bob) Headland, the famed archivist and polar historian at the Scott Polar Research Institute, University of Cambridge, provides. For many years he has maintained a tally of vessels that transit the Northwest Passage on an annual basis from the Atlantic Ocean to the Pacific or vice versa. In addition to circulating the list to a number of interested colleagues, he also publishes the information on an occasional basis in *Polar Record* or other venues, carrying forward the list that Pullen and Swinbank (1991) did, starting with the first transit by Roald Amundsen in 1903-06. As of the end of the 2013 summer, the list of successful transits numbered 203. Bob's lists include the year of the transit, vessel name and type, registry, name of master, and which of the seven possible routes taken. As the ice conditions continue to vary each year—primarily less of it a result climatic conditions—the list of transits can be viewed as a record of the anticipated commercial activity as well as recreational and tourist travel, all of which are expected to increase.



Kapitan Dranitsyn, Russian diesel-electric icebreaker that has been to the North Pole, transited the Northwest Passage, Northeast Passage (Northern Sea Route), and also Antarctica.

The 2014 summer will provide a break for Bob, as someone else will continue the service of vessel-watching and relevant details. As a means of making the list public on a regular basis, we intend to print it in the January issue of *The Polar Times* each year, providing enough time for the transits of the previous summer to conclude. The first list will thus appear in the January 2015 issue.

Bob's annual tally of ship activity in the Arctic also includes a list of ships that have reached the Geographic North Pole, starting in 1977 and continuing through 2013, with a total of 161 vessels that have achieved the Pole. A list, as of the 2009 year, is in the public literature (Splettstoesser and Headland, 2009). He has also compiled an estimate of the number of people who have stood on the ice at the North Pole—

historian staff member for the tour operators. In other words, the list is a means of keeping track of his annual forays into the Arctic. In the austral summer he is on tour ships in the Antarctic, including a visit by aircraft to the Geographic South Pole. Whether the weather in Cambridge, U.K., is a factor of his travel can be debated, but it is apparent that he likes his work and has earned the Russian title of "Polyarnik," or "one who makes his career working in the polar regions." ¶

Pullen, T. and C. Swinbank, 1991, *Transits of the Northwest Passage, 1906-1990: Polar Record*, 27(163): 363-367.

Splettstoesser, J. and R. Headland, 2009, *Russian icebreakers for tourism and science in polar regions—Changes due to climate change: Proceedings of the 20th International Conference on Port and Ocean Engineering Under Arctic Conditions*, June 9-12, 2009, Luleå, Sweden (Paper POAC09-92).

Yes, More Ships Transiting Arctic Waters

But a Milk Run It's Not, Nor Likely To Be

by Cliff Bekkedahl

Total of France, Novatec of Russia and China National Petroleum—big companies, big bucks—are investing \$27 billion to develop Yamal LNG, a giant natural gas export facility deep inside the Arctic Circle in western Siberia. Huge and powerful LNG tankers capable of smashing heavy ice will be built to carry the gas to markets in the industrialized world.

Okay, but the owners are wrestling with the question of how do you evacuate crew members from these ships in case of emergency?

Add to this, other fundamental maritime concerns yet to be resolved and the net effect translates to higher insurance premiums that make an Arctic transit as expensive as the longer transits via the Suez Canal.

Concerns: spotty coverage by nautical charts, GPS coverage unreliable, shallow water areas insufficiently charted and, despite larger areas of melting ice, there still remains the need for icebreaker assistance (which is not readily available).

Environmental concerns loom large: there are no standardized measures for containing

pollution from spills amid all the ice. Moreover, spill containment equipment is not as readily available as elsewhere in the world, indeed, it might take as much as two weeks to deploy such equipment to an Arctic spill site.

Abandoning ship! Does the crew walk away or bob away in lifeboats or rafts? Maybe neither depending on ice conditions!

Spokesman for the Yamal project say that regular voyages are to begin in 2017. That doesn't leave much time for dealing effectively with the concerns expressed. ¶

“Unstoppable”

by Cliff Bekkedahl

Okay, class, you saw it here first, in the January issue of *The Polar Times*. In November 2013, NASA announced the calving of a large iceberg from the Pine Island Glacier, one of the many glaciers of the West Antarctic ice sheet. Designated B-31, this hummer measured 21x13 miles and has begun its long voyage to oblivion in the southern seas.

The announcement also noted the accelerated movement of the Pine Island Glacier and cites evidence that warmer sea water triggered the recent acceleration and will cause further thinning of the ice shelf and a retreat of the ice grounding line. Ultimately this acceleration of the glacier to the sea will lead to an increase in the global sea level.

Dial ahead to mid-May 2014 and you find that another NASA announcement concerning glacier movement along the West Antarctic ice shelf is forthcoming. This is a biggie!

Three researchers—Eric Rignot of

NASA's Jet Propulsion Laboratory; Sridhar Anandakrishnan of Penn State; and Tom Wagner of NASA's Earth Science Division—co-authored a paper entitled “Widespread, rapid grounding line retreat of Pine Island, Thwaites, Smith and Kohler glaciers, West Antarctica from 1992 to 2011.”

According to the authors, this “retreat” is unstoppable and will raise sea levels by four feet. These glaciers already release almost as much ice into the ocean annually as the entire Greenland ice sheet.

“Grounding lines” delineate the critical boundary between grounded ice and the ocean, that line where ice detaches from the bed and becomes afloat and, therefore, frictionless. Ice past the grounding line is more readily available to detach from the main ice sheet and float away. As the line retreats, more ice tends to break off, enter the sea and contribute to raising of the sea level.

Concurrently, the journal *Science* published an article (10 May), authored by Ian Joughin of the University of Washington,

which focused on Thwaites Glacier and predicts that this glacier will disappear in a matter of centuries, raising the sea level by two feet. Significantly, Thwaites Glacier also acts as a linchpin on the rest of the ice sheet, which contains enough ice to cause another 10 to 13 feet of global sea level rise.

Unstoppable and inevitable, this glacial collapse is likely to take more than 200 hundred years before happening but, that said, sea level rise projections in the interim will have to be adjusted upward.

In the *New York Times* Science section, page D1, on Tuesday, 20 May 2014, there can be found greater detail on the West Antarctic Ice Sheet “unstoppable” glacial disintegration, with additional commentary on the global status of land based glaciers and the Greenland Ice Sheet. All are in some stage of melting but the melting of the West Antarctic glaciers pose the gravest threat of significant sea level rise. ¶

Pine Island Glacier

Iceberg B-31

Photo courtesy earthobservatory.nasa.gov

Anecdotal Empirical Evidence of Arctic Climate Change, 1968-2013

by Captain Patrick R. M. Toomey, Canadian Coast Guard (retired)

My first trip to the Canadian Arctic for the summer navigation season of 1968 was as Chief Officer aboard the Canadian Coast Guard icebreaker *N.B. McLean*. Since that introduction to Arctic ice, I have made Arctic voyages in most years to either the Canadian or Russian Arctic—sometimes both—including 20 years as Captain of Canadian Coast Guard icebreakers and 21 years as ice-pilot for expedition cruise ships. The Arctic expeditions aboard Russian icebreakers have taken me through the Northern Sea Route along the coast of Siberia from Atlantic to Pacific, plus six voyages to the North Pole. On the other side of the Arctic Ocean, my total transits of the Northwest Passage (NWP) now stand at fourteen, the first of which was completed in 1978—officially the 19th transit in history, according to the Archivist of the Scott Polar Institute in Cambridge University. The most recent (Official #198!) was completed in 2013 as ice pilot for a large private motor-yacht. Having also made thirty-three trips to Antarctica from 1994 to the present—including one circumnavigation of the Antarctic continent—I can compare what is happening in both polar regions since 1994, the whole being a very short geological time period, indeed, to produce the changes I have witnessed.

The evidence of climate change in the Arctic, which I am writing about here, has been gathered from personal observation rather than from documented statistics of temperature fluctuations, dates of freeze-up or ice break-up, number of degree-days and all the scientific stuff—all of which I have read with great interest but which I do not feel has the same impact on the senses as seeing the icescape and the landscape change before one's eyes. In the 1970s, 1980s and 1990s, we used to use a "rule-of-thumb," that being that in every cycle of seven years, there would be two reasonably good Arctic navigation seasons and five bad ones, not necessarily following one another in the case of the good seasons. Since the turn of the 21st century, that cycle has seemed to reverse itself, with five "good" seasons and two "bad" seasons out of every seven, which has led some people less experienced in ice



Russian nuclear-powered icebreaker "Yamal" in second year ice near the North Pole.

navigation to suppose that every season has a good chance to be a good one, so that preparations for a bad outcome are not really necessary. Not so. There are too many variables in play, and any navigation season might turn out to be very difficult for shipping, despite the average warmer temperatures over the longer term.

The most prominent feature of change which strikes the Arctic ice navigator over the years is the number of channels in the Canadian Arctic Archipelago, which never used to be navigable in summer, even by icebreakers—channels which are now frequently usable by icebreakers or ice-strengthened vessels of other types. The most notable example of this is M'Clintock Channel, west of Prince of Wales Island, which, until about seven years ago, was not even considered as an alternative route for the Northwest Passage. M'Clintock Channel now becomes ice-free by the end of the season in good years and is navigable for a short period of time in most years. Viscount Melville Sound is also looking more attractive to shipping, and the natural deep-water route through M'Clure Strait has become a route to be considered for use on a regular basis by very large ships, when only a few years ago (2001) the Russian icebreaker *Kapitan Khlebnikov* was the first large vessel carrying passengers and only the fourth or fifth ves-

sel of any kind to transit by this route. The channels which are presently opening up to shipping on a regular basis are mostly south of the Parry Channel, generally south of Latitude 75° N, as these channels are not so susceptible to incursions of polar pack from the Arctic Ocean as are those in the High Arctic north of the Parry Channel.

The other major change over the years has been the decrease of the proportion of "old ice" mixed into the winter pack throughout the Arctic, none more so apparent than on the North Pole voyages by nuclear-powered icebreaker from Murmansk or Spitsbergen across the eastern Arctic Ocean. My first voyage to the North Pole took place in 1999 and the last two in 2005, and there was always some variation in the ice conditions between them. On one trip in July 2003 the *Yamal* was stopped by old ice 100 miles from the Pole; however, she could have broken through if there had not been a time restraint in returning to Murmansk. This trip offered the toughest ice conditions of any of the six I have done, but I was told by the Russian crew that even that trip in 2003 was much easier than the earlier voyages after the first successful attempt by a surface vessel to reach the Pole in 1977. This is a perfect demonstration that the ice conditions in any area cannot be predicted with complete accuracy from one year to another. The

“good” years before 2003 were not cancelled out by the difficulty of that particular year; then, in 2004 and 2005 there was much less old ice along the route than ever before.

With less old ice drifting during each melt season into the more southerly Arctic shipping lanes from the Arctic Ocean in Siberian, Canadian and U.S. waters, there is more first-year ice forming in winter along the shipping routes, which melts out each summer. This first-year ice will usually melt out to open water conditions during the navigation season along the shipping routes, with the added benefits to shipping of allowing earlier entry and later departure as there is little or no dangerous old ice to contend with. With so much first-year ice now melting at the start of each melt season, the open water routes—or sections of routes as the season progresses—become wider and more extensive, so that the polar pack retreats much further to the north on both the North American and Siberian sides of the Arctic Ocean, giving much more room for ships to pass offshore in deeper water and greater warning before the polar pack starts to move south in the freeze-up. These wider openings along the coasts of the Beaufort Sea and the Siberian Kara and Laptev seas, now tend to fill with developing first-year ice, thereby preventing what remains of the old ice from arriving at the coast to interfere with the following shipping season.

In the 1970s, the Davis Strait and Baffin Bay used to contain considerable quantities of drift ice right through the shipping season, even though the west coast of Greenland used to—and still does—remain open water, or with very light ice as far north as Disko Island; on the Canadian side we often had problems with ice on the west coast of Baffin Island, up until the freeze-up in late September. In recent years the last of the winter pack has cleared out almost entirely from Baffin Bay and Davis Strait by the end of July, with a small stream of older ice coming south from Smith Sound; but my observations of the same area in 2011, 2012 and 2013, during three consecutive transits of the Northwest Passage, indicate that even the string of old ice has diminished into insignificance on the Baffin coast by the end of August. During the transits of 2011 and 2012 with passengers aboard, we had to actually make diversions of considerable distances just to find some drift ice for the passengers to photograph, as they did not want to go home without any photos of ice and the bears which live on the floes. In 2011 the

passengers were unlucky in this regard as, despite the diversions, we could not find any serious ice along the whole route, and the few bears we saw were all ashore along the beaches. In 2012, while eastbound through the Northwest Passage, we had to steam north halfway up the Prince of Wales Strait to look for serious ice and did not find any ice at all before we reached the southern limit of Shipping Safety Zone 1, which we were officially not permitted to enter—despite the open water beckoning us onwards—because of the risk of serious ice damage to an unstrengthened ship! Later on during the same voyage, after leaving Cambridge Bay, we did find a few strips of 2/10ths of almost melted ice in Larsen Sound, with seven polar bears still clinging to it, and that amounted to the sum total for the voyage. Back in 1978 on my first such transit of the NWP aboard an icebreaker, we took a month to cover the distance from Cambridge Bay to Resolute; in 2012, aboard a passenger vessel with no ice-class, five days would have sufficed, had we continued north through Peel Sound instead of taking the scenic route through Bellot Strait.

bound with no trouble at all, not a single ice floe in sight from one end to the other. In 2013, when I served as ice pilot aboard a private 50-metre motor yacht on an eastbound transit, the Bellot Strait was the savior of the voyage, as the northern end of Peel Sound was blocked by heavy ice, but we could still get into Prince Regent Sound by an ice-free Bellot Strait. After a short assist of about 30 minutes from one of my former colleagues aboard a Canadian Coast Guard icebreaker at Prince Leopold Island, we came out into Lancaster Sound unscathed, much to the delight of the owner, who was aboard. He and his guests now had pictures of ice, an icebreaker, an escort event, and not even a scratch to the immaculate paintwork of the hull. I doubt that the same outcome would have occurred some 20 years ago. On the same transit we met seven small sailboats, of the sort which now appear each year in large numbers and a dozen or so of which now routinely transit the NWP in either direction in a single season. Amundsen and Henry Larsen would be really surprised to hear that what took them two or three years to accomplish can now be done in three



Polar bear searching for food on a mountainside, Scott Inlet, Northeast Baffin Island. No ice for hundreds of miles in any direction.

PHOTO COURTESY CAPT. PATRICK R.M. TOWERY

Which brings me to another change over the years: Back in 1968 when I started going north, the Bellot Strait was seldom, if ever, transited in either direction, as it was always either full of ice, or blocked at one end or the other—or at both ends. At some time in the early 1990s the Bellot Strait became a short-cut for icebreakers on expedition cruising and, as the ice diminished, a lot of shipping started to use it on a regular basis. In 2012 I took the condominium ship, *The World* (43,500 tons), through east-

months, often by rank amateurs in highly unsuitable craft.

There are other effects of climate change in the Arctic besides the changes to the ice regime. The rising temperatures are truly noticeable ashore in the summertime, when one leaves the vessel at the anchorage at about 5°C, cooled by the sea-breeze in the Zodiac and dressed for the occasion. Then one steps onto the beach to find that the temperature ashore is somewhere in the high 'teens Celsius, and much clothing must

be shed in order not to collapse from the heat if exertion is called for. In some places a visitor might even see a migratory bird, insect or animal whose normal range is far to the south. But what a visitor is certain to see is mud from melting permafrost. The melting of the permafrost below the normal "active layer" of about one and a half or so metres is already causing major problems to large high-rise buildings constructed in major centres such as Iqaluit, as the uneven thawing of the ground beneath the supporting pilings is causing the buildings to lean—if not out of plumb, then at least popping out the windows. Vehicle tracks over the tundra which may have been made by heavy vehicles thirty or more years ago, are now melting down into small ravines, the melt-water runoff in each successive season widening and deepening the watercourse until it no longer even resembles the track which was its origin. Where pipelines have been erected on posts to keep the comparatively warm pipeline from thawing the frozen soil beneath its route, the supports

themselves are now sinking through the active layer. This movement is now subjecting the pipeline to stresses for which it was not designed to withstand, and the possibility of developing serious and catastrophic leaks is a reality. Telephone poles lining the streets in most Arctic villages often lean at odd angles, sometimes breaking the wires which they support, as the ground thaws beneath the gravel mounds that have been heaped around the base of each pole as insulation. The airport runways in the Canadian north are almost all unpaved, and they can be kept level by grading, but the few paved runways are in danger of crumbling under the landing gear of heavy aircraft as the asphalt absorbs more and more heat from the sun, melting the permafrost beneath the runway foundations. Herschel Island in the Yukon demonstrates a classic case of "slumping" from the melting permafrost, where whole sections of coastal hillsides have just slid away towards the sea, revealing cliffs of dark blue ice beneath the thin topsoil. Each time I go there, more big cracks have opened up

as the landscape readjusts itself. The whole island will eventually become just another shoal close to shore.

Most of the changes I have observed started out as quite gradual over the first 25 years of my Arctic service, dating from 1968, and could have been accounted for at the time as possibly anomalous events. The last 20 years has seen an acceleration in change in so many characteristics that an absence of five years (2006-2011) made me feel that I was in a different Arctic to the one I had previously known. This was especially evident when I made my 2011 ice-free transit of the hitherto dreaded Northwest Passage. ¶

Patrick Toomey, born in the UK, sailed worldwide in the British Merchant Navy as a navigating officer from 1951 to 1964, reaching the rank of Chief Officer with a Master Mariner's Foreign Going Certificate. He emigrated to Canada in 1964 to join the Canadian Coast Guard, attaining the rank of Captain in 1970, and retired after 27 years service in 1991. He currently serves as an independent consultant in any matters concerning ice navigation and as ice pilot for vessels carrying passengers in the Arctic and Antarctic. He is a Fellow of the Royal Canadian Geographical Society and has collaborated as a co-author for "The Ice Navigation Manual" (Witherby Seamanship International).



Ilulissat, Greenland. Sudden surge of output of icebergs, pushing each other out to sea as the glacier increases speed due to increase in melting. (PHOTO COURTESY CAPT. PATRICK R.M. TOOMEY)

Polar Bears on Path to Extinction!

by Cliff Bekkedahl, Managing Editor

In the last issue of *The Polar Times*, January 2014, we printed a short article that cited a study by the U.S. Fish and Wildlife Service. The study describes the Chukchi Sea population of polar bears as gaining in size, appearing healthier and producing more pups than their nearby Beaufort Sea cousins; this despite a marked difference in sea ice thinning between the two areas with Chukchi sea ice thinning to a much larger degree than the Beaufort sea ice pack. This ice thinning feature runs contrary to contentions that thinning ice cover makes it more difficult—indeed, treacherous—for polar bears to catch and consume their traditional source of nourishment, ringed seals.

A number of readers took exception to our printing this—well, to put it mildly, blasphemy (see “*The Members Protest*” on next page).

Blasphemy—in the sense of irreverent behavior toward anything held sacred—cannot go unchallenged!

The orthodoxy is clear ... unequivocal ... man and his industrial revolution has irresponsibly discharged immeasurable quantities of carbon dioxide, along with other toxic materials, into the atmosphere, creating the “greenhouse” effect which has led to “global warming” (now called “climate change”), and one the many manifestations of this warming is the melting and thinning of Arctic polar ice, to the extent that polar bears in the not too distant future will be unable to access suitable fields of ice in which to hunt and catch their diet staple, ringed seals.

A leading polar bear expert has declared without reservation that “consequently, the

existing stock of polar bears will be reduced 50 percent by 2050 and ultimately become extinct.” Other experts are suggesting that the number will hit 60 to 70 percent by mid-century.

I kid you not! Get on Google and enter any of several sets of key words—polar bear population trends; sea ice thinning impact on polar bears; the future of polar bears; ringed seals and their populations and habitat—anyway you want to call up

desired reductions in CO₂ discharge were to be achieved? Would warming subside? Would climate change be modulated or, somehow, would weather patterns return to their old ways or at least stabilize at the turning point? Would previous levels of sea ice coverage and its sustainability be restored?

These are unfair questions to be asked in this screed, but while the outcomes of a failure to significantly reduce the amount of greenhouse gases discharged into the

atmosphere are trumpeted widely, the outcomes of capping or reducing these pollutants are rarely mentioned, and what is whispered is uncertain at best.

To the specific subject at hand, are polar bears *en route* to extinction? Expert consensus seems to be, yes. Air drop seals or, as one expert suggests, capture as many polar bears as

possible and distribute them to zoos worldwide as a final and desperate measure(s) to preserve the species? Wow!

But wait a minute. Let's do some math. When this article was in the first-draft stage, the literature on polar bears asserted that the polar bear population numbered 20,000 on the low end and 25,000 on the high end. Understandably, everyone has agreed that an accurate count is difficult, very difficult, to obtain. Fair enough.

However, in February 2014, unexpectedly and with little to no explanation, it was announced by the Polar Bear Study Group (PBSG)—a sub-group of the International Union for Conservation of Nature (IUCN)—that the count was revised to 13,071–24,238 with 18,000 as the viable benchmark number. That's a considerable change that was not satisfac-



Polar bear hide drying out in a frame on Saint Lawrence Island, Gambell, Alaska

Photo by Jane Schuttlesheim

information on polar bears, you will get the same story: Greenhouse gases, global warming/climate change and Arctic ice thinning equals polar bear extinction.

The same polar bear expert predicts that in not too many years ahead, the Canadian government will be air-dropping seals (dried? fresh?) to clusters of landlocked polar bears, just as the U. S. does with hay for elk in our National Parks.

The solution, or the only way to reverse this terrible outcome, is? Again, Google it up yourself. You will find that the only solution offered is to stop discharging greenhouse gases into the atmosphere. Is there anyone on the planet who thinks for a moment this will happen? Reduce the amount, lower the rate? Perhaps. But full stop or drastic reduction? Preposterous!

And what is the supposition if indeed the

torily explained and should be addressed by the polar bear advocacy community.

But the number not subject to question that knocks your socks off is the number of polar bears per year killed legally. A small percentage of these kills are for “subsistence,” but the bulk is by trophy hunters. For Canada, the number is 700, plus or minus; Greenland, 30; Norway, 0; U.S. (Alaska) small (subsistence only) and 0 trophy hunting; and Russia, unknown (they claim 0, but few believe it). But, let’s just take 700 as a baseline number and do the math—the biological math.

What if, instead of shooting some 500 to 700 (Canada alone) trophy-qualified polar bears each year, you let them live out their normal life span? Okay, allow for natural, as well as some extraordinary, attrition—some number getting shot at a garbage dump or drowning on a swim to the receding ice. And then take into account the natural mating and birth rate in a population, baseline 700 of non-shot bears and increasing this population each year by another 700 non-shot plus offsprings of the preceding year’s and on and on for a decade. What incremental addition would this population

make to the growth of the existing population over the same ten years? Clearly, a great question, which I couldn’t begin to answer so I went to the uber conservation organization, IUCN, and the subspecialty group, PBSG, to ask if they knew of any studies or information that would lead to an answer(s) to my question.

At this writing, total silence has been the response. *The Polar Times* will persist with this inquiry and report their findings, if forthcoming, in a subsequent issue(s).

In the meantime, you don’t have to be a mathematician or biologist to realize that any future increase in the polar bear population can only mean that shorelines will get overcrowded with herds of polar bears, all eyes skyward searching for their meals-on-helos.

So, is there a conclusion to be drawn from ending trophy hunting of polar bears? If Arctic ice continues to thin, reducing polar bears’ access to their primary source of nourishment and driving them ashore to compete for scarce foodstuff—birds and bird eggs, seasonal plants, cannibalization, rodents, et al—then a cessation of trophy hunting simply compounds the problem

and possibly accelerates the process of extinction. Indeed, larger numbers of polar bears foraging along the shoreline and deeper inland could put them in conflict with brown bear species that manage to subsist on the meager resources described above.

Okay, let’s assume the Chukchi Sea polar bear population and their apparent well-being is an anomaly. Indeed, their condition as reported by the U.S. Fish and Wildlife service may be a nuanced effort intended to deflect attention from the realities of climate change and the consequences of irreversible thinning of the Arctic ice pack. Could be.

But this leads to a whole new area of inquiry—actual annual sea ice coverage, its composition, age, increase or decrease in thickening or thinning, where and how much. And what of sea ice in areas relevant to polar bear populations? These are all variables that defy prediction. And yes, they raise questions difficult to answer, but the apocalyptic scenario—extinction by mid-century—does not ring scientific. Nor does airlifting seals to dining sites along the Arctic rim or filling the world’s zoos with captured specimens appear as plausible solutions to a problem poorly framed. ¶

The Members Protest...

The following is a letter to the editor from Dr. Bruce P. Luyendyk, Ph.D., Professor Emeritus, Earth Science, University of California at Santa Barbara.

The article “Chukchi Polar Bears Thriving as Arctic Ice Recedes” by Kenneth Artz in the January 2014 issue of *The Polar Times*, reprinted from www.newsheartland.org (October 7, 2013) misleads and misstates facts concerning polar bear populations in the Arctic. It discusses a study by scientists of the U.S. Fish and Wildlife Service, the U.S. Geological Survey and others (Rode et al. 2013). Artz’s article reports that the Chukchi population is thriving according to Rode et al. It goes further, extrapolates and misrepresents the results of that study to discount the threat of sea ice loss to polar bears, as well as global warming science and its supporters.

The Chukchi bear population appears to be healthy compared to its neighbors. Reasons for this are examined by Rode et al and in an article in *National Geographic Polar*

Bear Watch (Nov 15, 2013, url below) that includes an interview with the lead author of the Chukchi study, Karyn Rode. Artz did not interview Rode or the other authors to support his point that claims of a global warming threat to polar bear populations are unfounded and alarmist.

In the *National Geographic* interview, Rode states, “The results of this study do not negate that sea ice loss remains a significant threat to polar bears, in the Chukchi Sea or elsewhere. Indeed, research in some other parts of the Arctic has demonstrated significant negative effects of sea ice loss.” And, “We cannot simply project the results of this study into the future to say that polar bears in the Chukchi Sea or elsewhere are not threatened by sea ice loss.” Her statements refute Artz’s claims attributed to her published research.

There are nineteen polar bear subgroups distributed throughout the Arctic. The census just released in February 2014 by the Polar Bear Specialist Group shows that four

are declining in population, five are stable, one is increasing and a full nine groups lack data to determine their prognosis; the Chukchi group is one with insufficient population data. They may be healthier but it is not known if their population is changing. The data available do not support a view that all is well with polar bear populations as implied by Artz, even in the Chukchi.

The source of the article reprinted in TPT is the Heartland Institute, notorious for its anti-science positions and its climate change denial propaganda. The reprinted article gives unwarranted and nonsensical recognition for “polar bear research” to Marc Morano of Climate Depot, a professional climate change denier.

Many members of the APS are scientists and many are Earth scientists who study climate change. It is inconsistent with these facts to give a platform and space in TPT to anti-science organizations to further their agenda. ¶

Endangered Polar Bears Mating With Brown Bears Because of Global Warming?

Producing Rare Pizzlies and Grolar Bears

www.kpopstarz.com, 26 May 2014, by Jeesun Choi—Polar bears are mating with brown bears, producing a rare hybrid! With the climate change slowly melting the North Pole ice cap, polar bears are forced southwards where they are now beginning to live on brown grizzly bears' territories. Scientists in Canada have found these hybrids wandering in the polar circles and have named them pizzlies and grolar bears, fun portmanteaus of polar bear and grizzlies.

The first sighting, documented by Spiegel, was on Victoria Island, 313 miles from the grizzlies' normal habitat on the Canadian mainland. The scientists thought that they were looking at a polar bear, but upon closer examination, they saw that the bear had a dark stripe on its back, a shaded snout and a much larger head with a hump behind its shoulders, which is characteristic of brown bears. These bears also had longer claws,

which are strange to see on polar bears. A DNA analysis reported by National Geographic confirmed that a bear in the Canadian Arctic is indeed a polar bear and grizzly hybrid. While these hybrids have happened in captivity, it is the first time that cross-breeding has happened in the wild.

These hybrids are believed to be a result of global warming and human activity. The melting polar ice cap is forcing polar bears onto dry land and road construction, mining and deforestation is pushing the brown bears north.

Pizzlies and grolar bears may look cool, but in fact hybridization is a serious matter. As these gene pools mix, the genetic diversity will decrease. Also, this may also decrease the production of actual grizzlies and polar bears as the bears waste the time and resources to produce infertile hybrids. In fact,



the hybrids may pose threats to polar bears, which are known to be less aggressive.

"They are two very different animals as far as behavior goes," Geoff York, a polar bear researcher at the USGS Science Center told Geophysical Institute of University of Alaska Fairbanks. "When a brown bear comes in at the bone pile, it chases off all the polar bears."

"Hybridization will endanger polar biodiversity," a scientist told Spiegel. Sadly, this is just one of many results of global warming and climate change. ¶

Polar Bear Watch

Minnesota StarTribune, 27 April 2014, by Steve Alexander (modified)—It is now possible to 'watch' polar bears from 380 miles away, from a satellite in space, of course. Seth Stapleton, a wildlife biologist at the University of Minnesota came up with the idea of spotting and tracking polar bears on the dark soil of a northern Canadian island via high-precision satellite photos rather than going there in person to count bears from a low-flying airplane. Canada's polar bear population is estimated at 10,000 to 15,000, a sizable share of the world population in the wild of 25,000. The idea is to determine how many bears there are and where they are spending their time, at least in a season when the cover of Rowley Island in Canada's Foxe Basin provides a dark landscape. Stapleton said that polar bears are big adults and satellites are precise enough to show anything that's 20 inches across. The bears show up as white dots against a dark landscape, but dots that move in photos taken over time. The bears are spotted when the ice breaks up and the bears must move to land. On these small, flat islands there's

a high density of bears, 150 to 300, and the land is snow- and ice-free.

Stapleton said there is no easy answer as to what will happen to the bears as the ice changes due to climate change. It depends on the location and types of ice available-- some types of ice are better for the seals that the bears eat, but if there is not enough ice for the bears to hunt on, they spend more time on land, and that's physically stressful for them. Many of the digital photos Stapleton uses come from DigitalGlobe Inc, a commercial satellite company in Longmont, Colorado. Those photos will become even more detailed after DigitalGlobe launches its new WorldView-3 satellite in August 2014. If Stapleton and others can figure out how to track polar



Mama polar bear teaches baby bear how to hunt.

bears on ice, it will allow them to track bears in more seasons of the year. Satellite photos can be expensive, depending on whether the University of Minnesota gets them from commercial sources, or from government agencies that already have purchased the pictures. For the moment, satellite imagery is very useful to procure what is required for polar bear tracking, and also cheaper than field work that can be costly if done by aircraft on occasions when weather and other factors prevent progress. ¶

A Week With the Polar Bears in Svalbard

Story and photos by Larry May

During the first week of July, 2013 my wife Debby and I made a circumnavigation of Svalbard aboard the *National Geographic Explorer*. A 367-foot stabilized, ice-class vessel operated by Lindblad Expeditions, the ship offers a pleasant level of comfort to roughly 150 guests. We were newcomers to the arctic, benefiting from the guidance of 8 or so experienced naturalists on board.

The journey began with a flight from Oslo to Longyearbyen, the “northernmost town in the world.” Our first approach was blocked by a fogged-in landing strip, sending us on a long ride back to the coast of Norway to refuel and try our approach again. Our second try found better conditions and we made our landing.

Once a busy coal mining town, the Longyearbyen mine is now almost idle due to the ready availability of coal in more accessible locations. Taking a quick bus tour we discovered the “northernmost church in the world,” the “northernmost pub in the

world,” etc. The high likelihood of meeting a polar bear outside the central part of town has led to an unusual bit of gun regulation: it is illegal to leave Longyearbyen by land without a rifle.

We set sail toward the east, and while not originally planned as a circumnavigation, foggy conditions in many of the ship’s usual stopping points convinced the expedition leader and Captain to push on northward, ultimately taking us above 81 degrees north latitude, and on a full counter-clockwise route around the archipelago. After several days, I realized we had not seen evidence of any human life beyond our own shipmates since leaving Longyearbyen, a new experience for me.

During the journey we kayaked among icebergs and took Zodiac rides to walk ashore under the protection of our armed naturalists. On land we saw reindeer, arctic fox and walrus. We viewed the remains of a whale blubber processing camp and several small outposts, some the final homes of stranded adventurers of the past. There

were also a wide variety of birds, often in the thousands, many in huge nesting colonies, including guillemots who tend their eggs on rocky cliff out-perches.

Only a few marine mammals appeared for us, and for only a moment’s glimpse. We caught a distant view of leaping dolphins, and Debby was one of just a few to spot a lone fin whale.

From the ship’s deck we encountered polar bears several times, usually in the evening, counting about 20 bears in total. The crew struck a good balance between getting close to the bears without stressing them or causing much change in their behavior.

On one evening we watched two lone males and a mother with one cub out on the sea ice, all within view of the ship at the same time. Our naturalists speculated the low level of ice in July caused them to be in closer proximity to one another than they might normally have been. The mother kept a close eye on the male nearest her, moving her cub along quickly, apparently fearing





A mother bear takes a leap.



This mom with two cubs was our first spotting and the only one on land. Our naturalists wondered if they might be ashore due to lack of sea ice in this particular July. A few feet to the right of this shot, the rocky peninsula ends—a safe refuge for Mama to get some rest.

the possibility of an attack on the cub by the hungry male.

The most memorable encounter was with one curious male who we first spotted sleeping, about 200 yards off the bow, as we moved slowly through the ice. The cap-

tain stopped the ship, and the passengers gathered, silent or whispering, to watch the bear as he awoke, yawned, and slowly made his way toward us, finally coming within touching distance of the hull (see back cover

photo) before we slowly moved on, leaving him to begin his evening hunt for seals. ¶

Larry and Debby May are adventurous travelers and fans of *The Polar Times*. They make their home in Hastings-on-Hudson, New York.

Bear cub see, bear cub do.



Varmints in Antarctic Regions—A Story Of Exotic Species

by John Spletstoesser

Bob Headland has performed a very useful survey of exotic terrestrial mammals in Antarctic regions and published results in the form of a table that illustrates the species introduced, the locations and the year of introduction (Headland 2012). His latest edition (April 2014, unpublished) shows the effects of the introductions on sub-Antarctic islands and in Antarctica, identifying species ranging from humans and rats to animals for local food supply and as pets. There are many examples of the latter, specifically reindeer introductions in South Georgia in 1911, 1912, and 1925 and Kerguelen Islands in 1956. Rats can be found on many of the planet's islands where the environment and food allow, but a few are without rats. An ambitious rat-eradication program conducted on Macquarie Island has shown (2014) that not only rats but also mice and rabbits have not been detected for two years. A similar program underway on South Georgia has shown success to date, with another season planned to eliminate not only rats but also mice. A program to eliminate the introduced reindeer and their descendants is close to success, with only six known animals remaining, but due for extinction in the coming austral summer (Denise Landau, personal communication, 2014). When the whaling industry began on South Georgia in 1904, livestock were introduced to provide a diet that included not only whale meat but also swine and reindeer.

The reasons for eradication and removal pertain mainly to the environmental impact that the introductions have produced, from destruction by reindeer of local vegetation as a habitat for ground-nesting birds on South Georgia, and also by rats. A video taken on Gough Island showed that



Photo by John Spletstoesser

mice feed on defenseless Tristan albatross chicks on nests at night, creating open wounds or death for the birds. House mice also predate on other nesting birds on the island, including the Atlantic petrel (Animal Conservation, 2012; Birdlife International (2008); Cuthbert et al., Antarctic Science, 2013).

Introductions of mammals in Antarctica began in 1821 with humans involved in exploration and sealing and whaling industries. Man reached the South Pole with Amundsen's party of 5 in Dec. 1911, followed by Scott in Jan. 1912, and sporadically in the period of exploration, with the South Pole being reached again with the arrival of an aircraft in Oct. 1956 and the start of station construction with continuous occupation ever since. A limited number of vertebrate animal species have been to the South Pole because of its remoteness from the coast and the frozen conditions, but aside from man (Amundsen and others), dogs (Amundsen's), and South Polar skuas that are occasionally sighted at the Pole, the only other vertebrate animal that has been to the Pole was the hamster, used for a science experiment in the U.S. Antarctic Research Program in 1960, not as food or a pet, but to observe behavior when rotated in an experimental container opposite to earth's rotation – results were inconclusive!

A visit to South Georgia and Antarctica currently involves safety precautions sim-

ilar to those experienced at airport security checks, with inspection of clothing worn by arriving visitors for non-native species that might occur in pockets, Velcro strips, backpacks and footwear. Members of the International Association of Antarctica Tour Operators (IAATO) conduct thorough inspections for all visitors who go ashore in

Antarctica and South Georgia. A brochure issued by IAATO to all passengers (Don't Pack a Pest) lists examples of non-native species that have already arrived in Antarctica, including seeds, grasses, algae, fruit flies, worms, spiders, midges, and microorganisms. ¶

R.K. "Bob" Headland, archivist and polar historian at the Scott Polar Research Institute, University of Cambridge.

Reference: Headland, R.K., 2012, *History of exotic terrestrial mammals in Antarctic regions*: Polar Record, v. 8, Issue 2, April, p. 123-144.

Another kind of varmint ... Antarctic Tourism Figures

The International Association of Antarctic Tour Operators (IAATO) announced its tourism figures for the 2013-2014 season.

The total number was 37,405 an increase of 9% from the previous season due in large part to an increase in Chinese visitors.

Nationality Percentage of Total

United States	33.2
Australia	11.0
China	8.9
United Kingdom	8.1
Germany	7.7
Canada	5.4
France	2.7
Switzerland	2.3
Other	20.7

Note Found in Bottle in Arctic Canada 54 Years Later

by John Splettstoesser

Because of where a note in a bottle was found in Arctic Canada, it could have held its secrets forever. Instead, two Canadian researchers came across a rock cairn on northern Ellesmere Island, about as far north as one can get in Canada (83°N, 74°W), and recognized a feature that looked out of place. The rock cairn contained a bottle with a paper note inside and, after examining it, the men realized its value. Dr. Warwick Vincent, Scientific Director of the Centre for Northern Studies (CEN) at Laval University, and CEN technician Denis Sarrazin came across the cairn in July 2013, photographed the note in the bottle and reported the find at the annual ArcticNet Science Meeting later in the year, where the story was picked up by the media. The note reads:

"To whom it may concern,

This and a similar cairn 71.3 feet to the west were set on July 10, 1959. The distance from this cairn to the glacier edge about 4 feet from the rock floor is 168.3 feet. Anyone venturing this way is requested to remeasure this distance and send the information to:

*Paul T. Walker, Dept. of Geology,
The Ohio State University, Columbus 10,
Ohio, U.S.A., AND Mr. Albert P. Crary,
Air Force Cambridge Research Center, 11
Leon St., Boston, Mass. U.S.A.*

Thank you very much.

*Paul T. Walker
July 10, 1959*

Paul Walker did not receive measurements because shortly after he wrote his note and deposited it in the cairn, he experienced a major stroke and became paralyzed. He was airlifted out and taken to his home in Pasadena, California, where he died shortly after, on November 11, 1959, only four months after his stroke.

Vincent and Sarrazin, the finders of the cairn, did what Walker requested and remeasured the distance. They found it to be 406 feet from the glacier front, a retreat of about 238 feet in 54 years. Satellites can provide somewhat the same information presently, but Walker's efforts were well before the advent of satellite imagery for this

remote area. The strong media response around the world to the report of this discovery shows what a compelling measurement Paul Walker left for the future.

The Life of Paul Walker

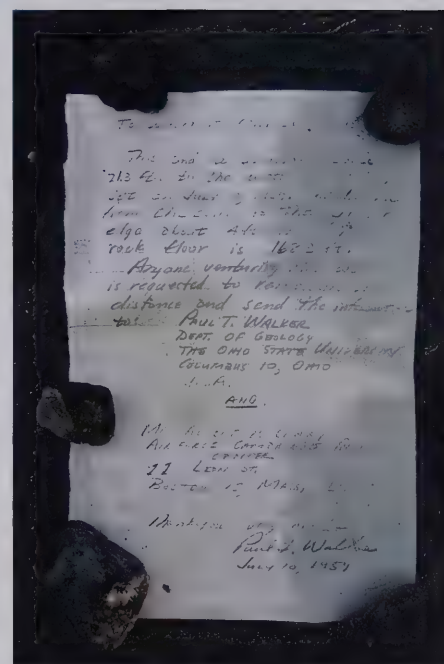
A search for information on Paul Walker (1934-1959) led to an obituary published in the journal *Arctic*, v. 12, no. 4, 1959, by his friend, Jim Lotz, who also wrote his obituary in the *Journal of Glaciology*, v. 3, issue 26, p. 791, 1959. Details about his life also were contributed from two members of the American Polar Society, Dr. John Behrendt and Dr. Richard Cameron. Shortly before and also after receiving his degree in geology from Occidental College, Los Angeles, in 1956, his life became polar very quickly, including work in Alaska, Greenland, and then a year in Antarctica (1957) in the International Geophysical Year, spending the winter at Ellsworth Station. Following that assignment, he went to Ohio State University as part of a program to reduce IGY data for publication. The student directory lists him in the 1958-59 year.

In 1959 he participated in the U.S.A.F. Ellesmere Island Ice Shelf Project, which brought him to Ward Hunt Island. It was on that expedition that he wrote the note dated July 10, 1959, related to the unnamed piedmont glacier and was flown out exactly one month later as a result of his medical emergency.

Dick Cameron knew Paul Walker when they were both students at Ohio State University, taking the same geology courses, and from having Paul at Dick's house in Columbus where Paul rented a room. Dick has also written a separate account of Paul during his polar experiences with details of assignments and his coworkers.

John Behrendt knew Paul from Ellsworth Station where both spent the winter and were on the traverse from the station across the Filchner Ice Shelf that resulted in discovery of the Dufek Massif, a mountainous area of the Pensacola Mountains. Paul's character is summed up very well in John's book *"Innocents on the Ice,"* Univ. Press of Colorado, 1998, where John states (p. 93):

"Paul Walker, 22, is engaged to a girl who is coming into an income of \$60,000/



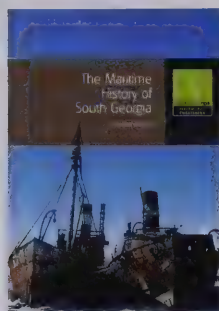
year, which was unknown to him until after they were engaged. He has spent two summers in Greenland and a couple working in Glacier National Park. He is the most easygoing and good-natured of the IGY people."

Paul was experienced in snow (crevasses, etc.) and an expert on Sno-Cat mechanics, having taken a five-day training course at the Tucker factory at Medford, Oregon.

It is apparent that Paul Walker was suited for just what he had been doing in his short life when, at age 25, he had found his niche in the polar world, was apparently in demand and was also finding potential rewards for his easygoing personality. Dick Cameron has added a note to say that Paul had a visitor to Dick's house when Paul roomed there, an airline stewardess who arrived with a broken arm, having just been in an airplane crash. It goes without saying that Paul had an interesting life up to age 25.

He is remembered for two geographic features named for him, Walker Hill, a 1400-ft-high feature on Ward Hunt Island, and Walker Peak in the Dufek Massif, which, Dick Cameron states, might make Paul the youngest person to have geographic features named in both polar regions. His life as a geologist is also featured in the Walker Anorthosite, a rock component of the Dufek Massif and named by Art Ford in Walker's honor. ¶

Book Reviews



The Maritime History of South Georgia

by Robert Burton
Dundee, South Georgia
Heritage Trust, 2013, 32 pp.,
£5 plus postage/handling, soft cover.
ISBN 978-09564546-2-1

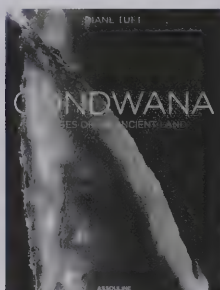
Reviewed by John Splettstoesser

This book is a thorough cross section of the maritime history from the time of first sighting of South Georgia to first landing, plus discussions of the role that ships played in expeditions, sealing, whaling, research, military activities, fishing, tourism, and what remains to be seen of that history, a maritime vessel cemetery, in a way. Some 80 illustrations of ships, in either color or black-and-white, tell the story of their use in this history, plus short narratives of each. Many tour ship itineraries include South Georgia because of the scenery and wildlife, plus an excellent Museum and the Carr Maritime Gallery, as well as the history of famous explorers. Sir Ernest Shackleton's expedition into the Weddell Sea started here on 5 December 1914 with the *Endurance*, which later became beset in ice and sank in 1916. A later expedition by Shackleton and the ship *Quest* started here, but ended for Shackleton when he experienced a heart attack in January 1922 and died in the harbor that includes the whaling station Grytviken.

The author did an extensive search for relevant material including photos of ships in order to satisfy the curiosity of readers who want to know this part of history when they visit South Georgia, and by traveling to whaling stations (all now abandoned, after the whaling industry ceased in 1965) where some of the ships exist as relics, consisting of whaling catchers and coaling ships. Grytviken's whaling history began in 1904, and several other stations followed, all in protected harbors and safe from what can be gently termed as energetic sea conditions. Grytviken is also a required visit for tourist ships and yachts to visit and announce their itinerary for immigration formalities. While there, visitors can view ship relics from the whaling days, such as *Albatros*, *Dias*, *Petrel*, and *Louise*, plus the whalers cemetery where Shackleton was buried. Commercial operators with fare-paying passengers must be members of the International Association of Antarctica Operators (IAATO), which maintains its own environmentally safe guidelines for behavior ashore. The inside cover and following page show an outline map of the island with locations of wrecks and hulks and other vessel remains and relevant dates for each.

Within a few days, visits to large colonies of king penguins are scheduled by tour operators, a bird-lovers paradise with nest-

ing wandering albatrosses and the unique assortment of bird life, such as petrels, ducks and a pipit. Whether you like Antarctic fur seals or not, plus elephant seals, be prepared to see many of them. An earlier history of imported reindeer from Norway has ended with the removal of all of them, as well as a current program to eradicate the rat and mouse populations. A short reading list of 10 entries leads the reader to further information, and a paragraph of photographic credits provides the sources of illustrations, including many by the author. The book is a product of the South Georgia Heritage Trust, a charity formed in 2005 to raise funds to support projects that will protect and conserve South Georgia's natural habitats; and the preservation of the historical heritage of the island. See www.sght.org for information on the Trust and its publications. The book can be purchased from SGHT's online shop at <http://www.southgeorgia.absoluteweb-hosting2.co.uk/>



Gondwana: Images of an Ancient Land

by Diane Tuft
(Assouline, 2014, 128pp, \$95)

Reviewed by Jeff Rubin

Tuft, who received an Artists and Writers grant from the National Science Foundation in 2012, aptly quotes Belgian surrealist artist René Magritte ("Everything that is visible hides something that is invisible.") in this book that showcases her attempts to reveal what she calls "the hidden light of Antarctica": ultraviolet and infrared radiation. The more than 50 photographs included here, only some of them in that invisible part of the spectrum, are abstracted nearly to the point of surrealism, "characterized by an irrational, noncontextual arrangement of material."

We see beautiful sun-lit pieces of Lake Vanda ice with wind-blown grains of sand clinging to them like points of data on a colorful graph. A closeup of the frozen lake surface, with alternating bands of milky and clear ice and Vanda's azure waters showing through, resembles an abstract painting that would not be out of place at a seven-figure sale at Sothebys.

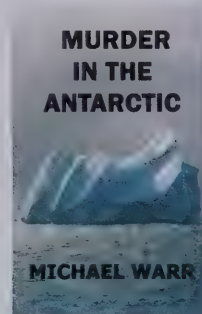
One image, titled "Mount Erebus 12:15PM," illustrates Tuft's sometimes too-conscious effort to make her photographs "art." On the left, snow is scattered across a rocky surface while cloud (or something merely out of focus) obscures the right-hand third of the photo. Without context, we don't know whether this is an extreme close-up or an aerial view. The best clue we have that we're viewing the latter is an author photograph on the book's last page, showing her taking aim with a Nikon through the window of an airborne helo.

More often, though, the photos are interesting reflections on pattern and light, as in the view of the surface of a "permafrost drift" in Victoria Valley or a sun-washed closeup of a zeolitized

dolerite ventifact at Bull Pass, each reproduced across two of the 13 x 10 inch pages.

Handsomely printed on heavy paper, *Gondwana* may be that rarest of Antarctic photography books—one that succeeds brilliantly with viewers who have no interest whatsoever in the frozen continent itself. After all, there's not a penguin anywhere in sight, only arresting images of undeniable aesthetic appeal.

For more information, visit www.assouline.com



Murder in the Antarctic

by Michael Warr
(FeedARead Publishing, 2013,
308pp, \$9.08 (available from Amazon))

Reviewed by Valmar Kuroil

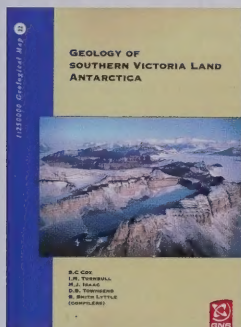
For those with a thirst for Antarctic fiction, it's always a pleasure to pick up a new novel by an author who has had first hand experiences with the polar environment, either as a tourist or as a member of a scientific or other expedition. British Columbia, Canada-based Michael Warr was born in Britain and spent two years with the British Antarctic Survey as a meteorologist on Deception Island and Adelaide Island, starting in 1963, while in his early 20s. Now retired, he returned to visit the Antarctic Peninsula several times in the 2000s and has lectured on Antarctic cruises as a staff historian. His previous book and memoir, *South of Sixty: Life on an Antarctic Base*, was published in 2005.

The framework of this novel is set right at the beginning, in an earlier era, when a dog team driver with a private British expedition in the Antarctic Peninsula becomes inadvertently separated from his travel companion. He is fatally marooned at a small shelter on a bay, without provisions and no chance of imminent rescue.

Cut to the present day, when a bank in Ushuaia, an Antarctic gateway port at the southernmost tip of South America, is held up by two gunmen. Concurrently, a tourist ship is just leaving for a trip to the Antarctic Peninsula and we meet the rather unlikely cast of vapid tourists and character types on board. One of the tourists and a main character is Jim, a pleasant ex-policeman who is asked by the ship's Captain, a former acquaintance, to investigate the gold robbery and to question the passengers quietly about their knowledge of any events related to the gold heist. Another leading character is Carol, a focused British nurse who soon becomes a romantic interest for Jim. She is also the daughter of the dead Antarctic expedition leader and is out for vengeance against the man who she believes left her father to die years ago and who is now onboard. Boyd, the object of her vengeance, is an obnoxious old tourist with too many over-embellished stories to tell of the old days of dog team exploration. He has no idea of Carol's blood relationship to his dead former co-expedition leader. Along the way, we are treated to descriptions of various landings, shipboard

dining and bar chatter. Eventually, several other people, including Boyd, turn up dead in mysterious circumstances and Jim's own life becomes endangered by one or more murderers who may all be unrelated in their crimes. Ultimately, Carol saves Jim's life, the gold is found on board and loose strands finally come together. The romantic finale that might have been expected turns about to be a kicker and not what might have been anticipated.

While *Murder in the Antarctic* may not quite be *The Heart of Whiteness*, the imagined classic Antarctic novel still waiting to be written, it is a worthwhile read, especially for those who have been on a trip to the far south and can now relive the daily shipboard life and their Antarctic Peninsula travel experiences in these pages. With some fuller characterizations of the passengers, heftier romance and more murders, the plot could well form the basis of an Antarctic thriller for the movie of the week on the TV screen. Contact: mwarr@telus.net; antarcticmemoriespublishing.com



Geology of Southern Victoria Land, Antarctica

by S.C. Cox, I.M. Turnbull, M.J. Isaac, D.B. Townsend, B. Smith Lytle (compilers)
GNS Science, Lower Hutt, New Zealand,
2012, 1:250,000 geological map 22 (colour),
1 sheet + 135 pp. \$35NZ + postage and packaging

Reviewed by John Spletstoesser

New Zealand geologists have provided an extraordinary product as a result of their field work over a period of many years, and together with additional data from others, have published a coloured geologic map that extends from Fry Glacier in the north to Skelton Glacier in the south (approx. 77° 30'S to 78° 45'S lat.). Map coverage to the west begins at about 159° E. long., and to the east to the eastern tip of Ross Island at Cape Crozier at 169° 30'E long. A cross section is shown at the bottom of the map, starting at Lashly Mountains in the west and extending eastward to the southern tip of Hut Point Peninsula, thus revealing the presence of a major rift basin, the uplifted shoulder that forms the Transantarctic Mountains escarpment. Large stratovolcanoes associated with the rift are present on Ross Island and on the nearby mainland. The spectacular scenery of the mountains consisting of Neoproterozoic and Paleozoic granitoids and metasedimentary host rocks, along with thick sequences of Beacon sedimentary rocks intruded by Ferrar Group dolerite sills in a setting of nearly ice-free Dry Valleys* provided the unique area that invited geologists and explorers starting with Scott and Shackleton in the early 1900s. Considerable attention was directed to the Dry Valleys as a result of the convenience of

access from Scott Base and McMurdo Station starting in the IGY. (*from book jacket.)

This map is number 22 of a QMAP project initiated by the Institute of Geological and Nuclear Sciences to produce a series of 1:250,000 –scale maps covering New Zealand in maps numbered 1 to 21. Anyone who has worked in this area will be familiar with a previous map published by Bernie Gunn and Guyon Warren in 1962 as part of the *New Zealand Geological Survey Bulletin* 71, "Geology of Victoria Land between the Mawson and Mulock Glaciers, Antarctica." Much has been accomplished since the days of Gunn and Warren, who are featured in a tribute on p. iii.

P.J. Barrett explains the history of the QMAP series in the Foreword (p. iv), acknowledges the pioneering work done by Gunn and Warren, and also mentions an additional series of Antarctic-wide geological maps in color compiled by C. Craddock and others and published by the American Geographical Society as Folio 12 in 1970. Plate XIII, Sheet 14, is by Guyon Warren in that series, "Geology of the Terra Nova Bay–McMurdo Sound Area, Victoria Land," which invites comparison with what was available at 1:000,000 scale with the present QMAP 22.

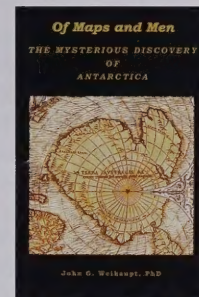
A review of the authors in References, p. 94–113, notes that much of the information has come from mainly New Zealand and U.S. geologists, who conducted field work in the Dry Valleys of Victoria Land and adjacent areas beginning in the IGY. As with much of the geologic work conducted in Antarctica starting the IGY, reconnaissance field work was the option to provide a basic setting of the geology of the continent, which included some mountainous areas not seen or explored prior to about 1960. The same is true of southern Victoria Land, where reconnaissance geology provided a transition to detailed and specialist studies, as discussed in the first chapters of the book. Ultimately, it became evident that deposits from glacial periods, both on land and the adjacent McMurdo Sound seafloor, contained clues to past glacial periods that are unique in the world for information on histories of ice sheet and glacier fluctuations.

The 135-page booklet that accompanies the map is necessary in providing explanations to the various parts of the map in an ascending age-oriented text from oldest to youngest periods of geologic development. Appendix 1 contains a Lexicon of units adopted for the map, and a discussion on p. 93 provides information on the Geographic Information System (GIS) dataset, which covers a slightly larger area than the printed map. Customized maps can be produced for various subjects of study, such as glacial deposits in relation to biota, glacial catchment regions, and at various scales. More information and the digital vector GIS files are available through www.gns.cri.nz/gmap. For new or additional information, for prints of QMAP 22 at other scales, for selected data or for derivative maps, contact: Geological Map of New Zealand Programme Leader, GNS Science, P.O. Box 30 368, Lower Hutt 5040, New Zealand.

Lastly, the map dimensions at 78 in. (198 cm) horizontal and 42 in. (107 cm) vertical invite an option to display it on a wall for detailed study. The numerous coloured photos and maps in the text numbered 1 through 64 show examples of selected aspects of the geology, including Figure 2, a reproduction of the hand-drawn and hand-coloured map done by Hartley Ferrar's geological work in McMurdo Sound and the Royal Society Range during Scott's Discovery Expedition (1901-04), published in 1906. Mapping was continued by Taylor, Debenham and Priestley during the Terra Nova Expedition in 1910-13.

Current and future researchers conducting geological and other studies in the map area will find the options of great val-

ue when requesting customized maps and different scales, as mentioned above. The map will also be a handsome addition to the wall of a classroom or home office. A limited number of rolled maps are available from the publisher by contacting the website (above) or the GNS Science office in Lower Hutt.

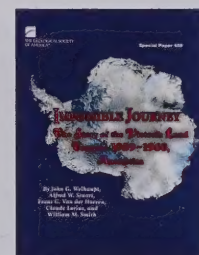


Of Maps and Men: The Mysterious Discovery Of Antarctica

by John G. Weihaupt

©2013, xx + 156 pp.,

stiff cover, ISBN 9781494375294



Impossible Journey: The Story Of the Victoria Land Traverse 1959-1960, Antarctica

by John G. Weihaupt, Alfred W. Stuart,

Frans G. Van der Hoeven, Claude

Lorius, and William M. Smith

Boulder, Colorado,

Geological Society of America,

Special Paper 488, 2012, xx + 135 pp., \$45.00

Reviewed by John Spletstoesser

The two books listed here are more alike than the titles would indicate because of results of the Victoria Land Traverse (VLT) that showed new information about a part of Antarctica that was essentially unknown prior to that austral season. The VLT was one of many that conducted field work during the International Geophysical Year (IGY), an 18-month year that was the beginning of an in-depth study of a continent that was unknown over much of its space on the planet. The world's largest ice sheet had not had much exploration in the interior, there were many mountain ranges yet to be discovered, the ice sheet had

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OBITUARIES

Joseph W. Entrikin

Joe Entrikin, who made aviation history in Antarctica, died on 5 April 2014. He was 91. Entrikin was a lieutenant commander in the U.S. Navy in 1955 when he commanded a long-range patrol plane from New Zealand to McMurdo Sound in Antarctica, a 14-hour flight. Reporters and photographers waited at the landing strip to spread the news of the first land-based flight to reach the frozen continent. A short time later, Entrikin saved his plane and crew during a research flight over Antarctica after one of his two engines lost power and eventually died. Entrikin won special recognition from the Navy for his accomplishments. Entrikin Glacier (80° 49'S, 160°E), Churchill Mountains, is named in his honor.

His flights were part of Operation Deep Freeze, a U.S. mission to prepare for the upcoming International Geophysical Year.

Entrikin moved to Lynden, Washington, after he retired from the Navy in 1964. He became one of the first pilots for San Juan Airlines in Bellingham, then became manager of the Whatcom County Economic Development Council, which worked to attract industry and other businesses.

In 1983, he and his wife, Phyllis, joined the Peace Corps and spent two years organizing 4-H clubs in the rural highlands of Ecuador. ¶ *By Dean Kahn, The Bellingham Herald, 9 April 2014*

Jerry W. Huffman

Jerry W. Huffman, 80, passed away in Waynesboro, Virginia, on 30 April 2014. He was born on 16 February 1934 in Lancaster, Wisconsin, received an undergraduate degree from the University of Wisconsin-

Platteville, and a Master's degree in Mining Engineering at the University of Missouri-Rolla. His employment with the National Science Foundation's Antarctic Program was extensive, including station leader at Eights Station in 1963, and USARP Representative at Camp Neptune, Pensacola Mountains, in 1965-66. An account of that major project involving a helicopter-supported field program is discussed in an article in the *Antarctic Journal of the U.S.*, July-August 1966, authored by Jerry and Dwight Schmidt. The concept of a remote camp with the use of helicopters for field geology became a routine exercise in the U.S. Antarctic Program, and Jerry's efficient management of the season in the Pensacola Mountains became a model for further camps. Jerry was commonly seen in Antarctica in various roles, including NSF Representative at McMurdo and elsewhere and was well-liked by all who came in contact with him. Mount Huffman at 75° 19'S, 72° 16'W in the Behrendt Mountains, is named for him. Further details of Jerry's life are in the obituary by his wife Gundel, written for the website of Charlton and Groome Funeral Home, Fishersville, Virginia. <http://www.charltonandgroomefuneralhome.com> ¶ *by John Splettsdoesser*

Maj. Gen. Robert A. Knauf

Maj. Gen. Robert A. Knauff, the former commander of the New York Air National Guard, was killed 3 May 2014 (age 61) in a glider accident in Aquila, Arizona. He was born 3 February 1953 in Pasadena, California.

Knauff commanded the 6,000-member New York Air National Guard and served as deputy commander of the 17,000 men and women of the New York Army and Air National Guard. Mount Knauff, a mountain that rises to over 1,000 meters (3,300 feet) between Egebert Glacier and Dugdale Glacier on the Pennell Coast of northwestern Victoria Land, is named in his honor. He was a 1975 graduate of the U.S. Air Force

Academy, received a B.S. in Aeronautical Engineering and a Master's in Aeronautical Engineering.

Knauff played a key role in the USAP (2003 until his retirement in 2009) during a critical period of expansion and intense need for logistical support.

New York Air National Guard LC-130 flights were instrumental in the successful completion of the new South Pole station, which was dedicated in 2008. The Guard also transported all of the personnel and equipment needed to complete two large-scale scientific projects at the Pole; the 10-meter South Pole Telescope and the IceCube Neutrino Observatory.

He was a combat veteran with more than 3,900 flying hours. ¶

Charles Leo Matsch

Charles Leo Matsch, 83, passed away unexpectedly on Friday, April 18, 2014. He was attending the annual Geological Sciences Banquet and Awards Ceremony at the University of Minnesota Duluth when he fell and sustained a severe head injury.

Charlie was born the seventh child of ten on June 22, 1930, in Hastings, Minnesota. In 1951, three years after graduating from high school, he enlisted in the U. S. Air Force for a four-year tour of duty during the Korean War. For a portion of that time he was stationed on a remote volcanic island in the Aleutians, where he was told by another airman that each island was sitting on a thin pedestal of volcanic rock, and that with eruptions and earthquakes, the island could topple over and fall into the sea. Charlie recounted that discussion, while he thought the information was likely erroneous, but it spurred an interest in geology.

In 1956, he enrolled at the University of Maine and in 1959 graduated with a major in geology; he was a member of Phi Beta Kappa. He earned his M.S. degree in geology at the University of Minnesota in 1962, and then worked as a petroleum geologist in Midland, Texas. He returned to the University of Minnesota

(BOOK REVIEWS, CONT'D.)

not been ice-cored to study paleoclimates, and there was little thought as to what existed beneath the ice sheet and its subglacial topography. Enter VLT, with a crew from several countries with objectives to conduct seismic, gravity, magnetic, geological, glaciological and atmospheric surveys over the ice sheet of northern Victoria Land and neighboring Wilkes Land. Transport was by tracked vehicles called Sno-Cats towing sleds with fuel and other supplies. Surface conditions ranged from hard, windblown snow features (sastrugi) that disrupted movement, to heavily crevassed areas that threatened the safety of men and machines. Temperatures were also a problem, causing metal fatigue that required regular repairs and replacement of parts. To those issues can be added boredom, although morale and team-work made the expedition a success in many ways. Major discoveries included previously unknown mountain ranges, the Wilkes Subglacial Basin, Wilkes Land Gravity Anomaly, and the prospect of finding a large meteoroid impact crater in Wilkes Land. The extensive list of publications on p. 127-128 relate to the latter. The VLT, begun in 1959 by the U.S. Antarctic Research Program, was four months in length, covering 2400 kilometers, and included 8 men

with various responsibilities from seismic work to cook to a skilled mechanic to maintain repairs on the Sno-Cats. Because of where they were and what resulted from the traverse, they were true pioneers of exploration of an area of the ice sheet that had never been seen previously. A one-page glossary of terms and an Index complete the book. Details of the traverse progress and what was conducted is well done and supplemented with numerous colored photos. I recommend the book to readers interested in how the U.S. program developed early programs (1950s-60s) for exploration of the continent using existing technology that pales by comparison with later developments of surveys from aircraft and satellite imagery, for example.

The VLT includes a teasing of information on discoveries of the continent that are explained further in the book "Of Maps and Men," a historical account of findings of maps that show versions of Antarctica that have vague similarities to today's maps. Two maps in particular are discussed in detail – Orontius Finaeus map of 1531 and Gerhard Mercator's map of the world of 1538. The perplexing part is that early explorers reached the continent of Antarctica and surveyed its coastlines and part of the interior that

resemble today's geography. Who those people were and how they did it is a mystery that is explained by way of cultures that have shown no record of their existence, and also that differences in climate showed different coastlines where glaciers exist now but did not centuries ago. The author has shown himself to be not only a talented and experienced geophysicist (VLT), but also an historian who has posed the question of early exploration of the continent during several time periods. I recommend both of these books for scientists and the general public with curiosity about exploration of Antarctica starting more than 50 years ago, and the enigma of mapping before satellites. Keep in mind that there were individuals centuries ago who interpreted more about Earth and its history than we think likely. For example, Abraham Ortelius, a Flemish cartographer and geographer, deduced from the gradual mapping of earth features that the continents of South America and Africa were once joined, as shown by shoreline fits, a process later called continental drift. He published his conclusion in 1596, well before Alfred Wegener raised the prospect of continental drift in 1912 and later. ¶

where he established himself as a distinguished teacher. While there, he teamed up with George (Rip) Rapp to produce one of the earliest TV courses in Introductory Geology, "The Rip and Charlie Show". He then went to the University of Wisconsin-Madison where he completed his Ph.D.; his dissertation involved the Pleistocene geology of southeastern Minnesota.

In 1970 he joined the Geology Department at the University of Minnesota Duluth, where he taught until his retirement in 2001. He had the reputation of being an outstanding teacher and mentor to undergraduate and graduate students. In 1981 Charlie received the University of Minnesota's Horace T. Morse Award for contributions to undergraduate education, the University's highest award for teaching.

His research involved deposits of both Pleistocene and ancient glaciations, including the Neoproterozoic Mineral Fork Tillite of the Wasatch Range in Utah and the Permo-Carboniferous Whiteout Conglomerate of the Ellsworth Mountains in West Antarctica.

Charlie was a member of the U.S. expedition in the Ellsworth Mountains, 1979-1980. The Sentinel Range (north) and Heritage Range (south) contain exposures of the glaciogenic Permo-Carboniferous Whiteout Conglomerate, the primary objective of studies by Charlie and his UMD colleague Dick Ojakangas.

A Celebration of Life was held to honor Charlie on May 8 in the Tweed Museum of Art on the UMD campus. A total of 250 friends, colleagues, and former students came to this event, testifying to the great regard that so many people have for Charlie! ¶ **Dick (OJ) Ojakangas**

Farley Mowat

Farley Mowat, 92, Canadian author of 'Never Cry Wolf' and some 40 books that reflected his deep love of nature and of animals, died at his house in Port Hope, Ontario, on May 6. He was born in Belleville, Ontario, on May 12, 1921, and grew up in Windsor, Ontario, and Saskatoon, Saskatchewan.

Among his best-known works are "Never Cry Wolf," a fictional narrative about Mr. Mowat living among wolves in subarctic Canada, and "Lost in the Barrens," which follows a Cree Indian boy and a Canadian orphan's adventures in the Arctic. His novels and other nonfiction works have been translated into more than 20 languages. He was the recipient of many awards that reflected his passions related to nature and animals. ¶ **San Francisco Chronicle, 7 May 2014 (modified)**

Philip M. Smith

Philip M. Smith, of Santa Fe, New Mexico, died on February 16 after a brief illness. A leader in national and international science and technology policy and in the management of federally sponsored research and development for more than five decades, Mr. Smith was Director of the National Research Council of the National Academies of Sciences and Engineering for thirteen years in the 1980s and 1990s, and remained active on Academy committees after his retirement. He previously was an Associate Director of the White House Office of Science and Technology Policy in the

Ford and Carter administrations, and branch chief for science at the Office of Management and Budget during the Nixon administration. From 1959 through 1971 he directed polar and oceanographic research at the National Science Foundation. He was a glaciologist in the International Geophysical Year in 1957-1958, and was centrally involved in the organization of the U.S. Antarctic Research Program that followed the IGY. In his early years, he was active in cave exploration, and helped establish the Cave Research Foundation. Mr. Smith was an active outdoorsman, and throughout his life explored the rivers and mountains of the American West, Alaska, the Appalachians, and Africa. He was a member of the team that famously staged in 1960, in New Zealand-designed jet boats, the first and only up-canyon run of the Colorado River through the Grand Canyon. An ardent supporter of the arts, he was a theatre, classical music and dance devotee, and an avid art collector. Mr. Smith was especially interested in the work of the Washington Color School artists such as Sam Gilliam, and the works of contemporary Southwest American artists. His collection of works by the extended Dan Namingha family form the basis of a permanent display at the Museum of Northern Arizona. Mr. Smith was actively engaged in promoting young artists, and as part of his endowment to NMA is the creation of the Namingha Institute—an annual master class retreat for emerging artists to study with masters of contemporary art. A native of Springfield, Ohio, Mr. Smith held a B.S. and M.A. from Ohio State University and an honorary doctorate from North Carolina State University. He was the recipient of many awards and honors—most recently honorary membership in the Scientific Committee for Antarctic Research, an international committee of the International Council for Science. He is survived by a brother, David Smith, of Centerville, Ohio; two nieces, Diane Lutter, of Spring Valley, Ohio, and Karen Melin, of Findlay, Ohio; and their children Emily Lutter, Brian Lutter, Amanda Lutter, Benjamin Lutter, and Laura Melin. He is also survived by a worldwide network of people who proudly call themselves "Friends of Phil." ¶ **Published in Santa Fe New Mexican from Feb. 22 to Feb. 23, 2014**

Fred W. "Bill" Streitenberger

Fred W. "Bill" Streitenberger was a navigator with VX-6 and was on the 10 April 1961 MEDEVAC flight to Byrd Station to evacuate Leonid Kuperov.

Streitenberger, 87, died on 12 May 2014 due to natural causes. He was born in Denver, Colorado and traveled much of the world before settling in Palos Verdes. The people who knew and loved Bill will confirm he embraced life and committed himself completely to everything he took on. Bill enlisted during World War II and served twenty-two years on very active duty - first with the U.S. Navy, then the U.S. Marine Corps - in the Pacific Theater, Korea, and Vietnam. He also was a key member of USMC operations worldwide, including Germany (Berlin airlift), Lebanon (Operation Blue Bat), and the Dominican Republic (Operation Power Pack). A Gunnery Sergeant in the Marines, Bill wasn't always right, but he was never in doubt. He went to Antarctica with two expeditions to map the

continent and made history as part of the flight crew who made the first winter landing in Antarctica. When the expedition scientists named Streitenberger Cliff for Bill, his Marine comrades jokingly called him "Cliff" for years afterward. Following his career in the military, Bill, a world-class flight navigator and trainer, worked with numerous commercial air carriers, including World Airways, Continental Airlines, and Western Airlines. He said he was always glad to tell people where to go. Bill also was vice president in start-ups of several airlines, including Hawaii Express, Pacific East, and Air Hawaii. Formerly active in the Del Amo Flyers Club, Bill for many years flew his Cessna 172 airplane out of Hawthorne airport. Automobiles, though, were his consuming pastime. Bill was a member of the Jaguar Clubs of North America, where he served as President for three years, as well as Concours organizer, Chief Judge and newsletter editor for many years. He was his own mechanic, detailed his cars personally, and showed them elegantly. His beautiful cars were used as head-turning props in major media events, most recently the Las Vegas, Nevada premier of the movie "The Mechanic". Bill's stunning cars didn't just sit in his garage - he drove them, enthusiastically. Like life, he thought they should be used and enjoyed. As a very active lay-leader and sub-Deacon of St. Peter's Episcopal Church in San Pedro, Bill helped oversee St. Peter's school, the Vestry and Acolyte programs and was a member of the vocal and bell choirs. ¶

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"The captain stopped the ship, and the passengers gathered, silent or whispering, to watch the bear as he awoke, yawned, and slowly made his way toward us, finally coming within touching distance of the hull before we slowly moved on, leaving him to begin his evening hunt for seals."

Photo by Larry May
(See related story on page 28)